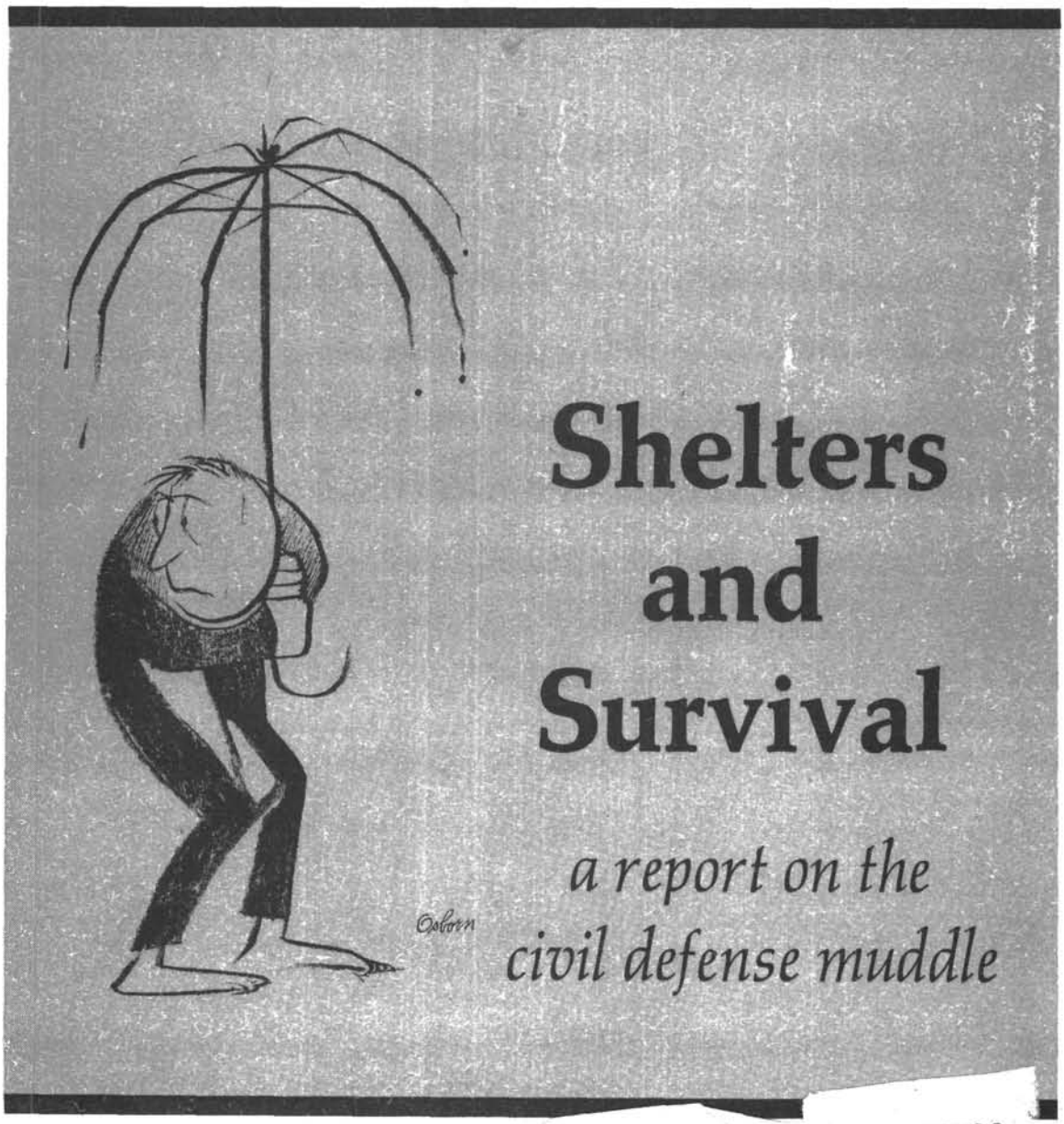
THE NEW REPUBLIC



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The Authors

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GARRETT UNDERHILL, *formerly military editor of* Life *and chief editor of the Military Intelligence Service of the Army General Staff, has written for two decades on military intelligence and weaponry developments. An early advocate of civil defense and the first American to attend the British civil defense staff college, his* Collier's *series in 1950 calling for an expanded US program won a Sigma Delta Chi journalism award. But the successful Soviet H-bomb test in 1953 led him to question whether meaningful civil defense was possible in the nuclear age. In June, 1956, when the Eisenhower Administration staged "Operation Alert," Mr. Underhill's description of the affair as a "dangerous farce" prompted his widely-publicized dismissal as Deputy Civil Defense Director in the national capital. He has served more recently as a consultant to the Coordination Group of the Army Chief of Staff.*

ROBERT OSBORN, *who has illustrated this issue, is widely known for the distinctive social commentary exemplified in* The Vulgarians *and* Osborn on Leisure, *among other books of his drawings.*

Civil Defense Muddle

For the man who wants everything, Hammacher-Schlemmer of New York City has a gift suggestion. Its two-page advertisement in the *New York Times* of November 12, 1961, displays: "Shelters for Living" complete with toilet, a "discretely, practically hidden" compact kitchen and bath, fold away bed, air filter, portable TV, hi-fi, a 4½ pound tin of multi-purpose food and a portable plastic container with five gallons of water guaranteed to remain fresh for 15 years. The shelter "protects from radioactive fallout. It is a haven from hurricanes, tornadoes, cyclones." It can be constructed in your basement, above ground or underground. If the one room is put underground (and it would be "a beautiful addition to any family's plan for pleasant living") and if it is equipped with the articles necessary "to reflect the interests and desires, the hobbies or the work of the individual, be it formal or casual living," the cost would be about $14,000. That is for one room only, with "one wall covered in US Plywood's Charter Pecan Weldwood paneling." The price does not include sundry items listed as "vital" or "the most essential" in the new civil defense booklet issued December 30, 1961, by the Department of Defense – rat traps, plastic bags, first aid kit, bottles and nipples, fly swatters, etc. Larger families or families where "interests and desires" are more varied might prefer two or three rooms. The price would rise accordingly. Further information can be obtained by calling Hammacher-Schlemmer's "Mr. Wallach, Mr. Higgins, Mr. Hosac, Miss Holz, Mr. Gassoway or Mr. Abbott."

What follows in this special issue of *The New Republic* is not an advertisement for shelter designs or a blueprint for personal survival in the event of nuclear attack; there can be no such blueprint. It is a brutal narrative of contradictions, a documentation of differences among specialists and of widespread public confusion that itself reflects confusion at every level of government.

The interested, perplexed citizen may begin by wondering why the highest officials of his government want this Congress to appropriate $692.3 million for fiscal '63 – and more later – for a fallout shelter program. The answer officially given is: If we don't take steps to protect some of the people (no one knows *which* people, for no one knows where the blows might fall, or with what force, or of what kind), Mr. Khrushchev may not believe we would fight a nuclear war. And if he does not believe that, he may try to "get away" with more than he would otherwise. But, if *we* are convinced that there could be enough people left to keep things going after a nuclear war, Mr.

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Khrushchev might be convinced that we would fight, and he might therefore be less inclined to cause trouble. This is the argument of "credibility." As applied to a fallout shelter program, it is a dubious argument on many counts. Herman Kahn, the analytic philosopher of civil defense, himself has said in answering those who fear that civil defense may make us more amenable to initiating a first strike, that "no country is going to go to war lightly simply because by doing so it could reduce fatalities from 60 million in a possible future war to, say, 20 million." Let us turn that statement around and see what it suggests about the "deterrent" value of a shelter program – "No country is going to go to war lightly because, noting the other side has no civil defense, it can count on inflicting 60 million fatalities in a possible future war, rather than, say, 20 million."

The case for fallout shelters likewise assumes that if there were a nuclear war, the Russians would explode their superbombs on or just above ground – cratering the earth and making it radioactive – rather than at high altitudes – creating no fallout but extensive fires instead. Why the assumption? These Soviet superbombs are not, in fact, primarily conveyors of radioactive debris. They are incendiary weapons.

The plain truth of the matter is that even to approximate a "credible" demonstration of our determination and capacity to survive nuclear war, we would have to undertake a massive, nationwide, deep shelter program, one that would provide "hardened" holes for a very substantial number of civilians. But there is no indication that the authorities, federal, state or local, intend to undertake anything so radical or so expensive. The Congress and the public will support an "active defense" (the military establishment) on a lavish scale so long as they are convinced it deters war, but not the building of concrete escape hatches in every city, town, village and farm, hatches into which one may not have time to escape, which probably would not save even their occupants from incineration (or germs or gas), and out of which the "saved," if any, would emerge onto a scorched, soured and dehumanized earth.

Nor is there any sign that those who can afford the "best" shelter – and the "best" is none too good, for no private or community shelter contemplated by civil defense officials is safe against blast or fire if the shelter is in the area of an explosion – are rushing to Hammacher-Schlemmer. As to the less well-to-do and what they can afford to invest in personal defense against a nuclear attack, these statistics are pertinent: As of early 1960, of an estimated 57.1 spending units (roughly equivalent to US families), 24 percent had no liquid assets; another 28 percent less than $500; another 12 percent less than $1,000.

Hanson W. Baldwin, the *New York Times'* military analyst, summed it up on January 8, 1962, when he wrote: "A national fallout shelter program must promise to increase significantly the strength of the deterrent against nuclear attack and to save appreciable numbers of lives if the deterrent fails and nuclear war occurs. . . . Yet there is considerable doubt in the minds of many experts that the present program, or for that matter any program, can accomplish these objectives." And he added: "No solution or even near-solution is in sight. There are few agreed-upon facts and a number of assumptions, unknowns and intangibles."

What Is To Be "Hardened"

The Secretary of Defense said at the end of 1961, in reviewing what his Department had accomplished in the preceding 12 months, that "we have assumed a new and expanded program for civil defense, so that we can improve our non-military defenses, against the distant but terrifying possibility of a major thermonuclear exchange." But what really happened in 1961 was that civilian survival in the event of a nuclear war was given low priority, for it was seen to be competitive with, and had to give way to, other defense requirements. Under the policy which will be followed in 1962, the military forces themselves will be the elements of society that are best protected at federal expense. Their bases will be "hardened." Shelters in homes, schools, office buildings, hospitals, apartments, community centers will not.

When all of the "hardening" or sheltering activity programmed through this fiscal year for the Atlas, Titan and Minuteman missile sites is completed, 37.5 million cubic yards of earth will have been moved. That is like digging a ditch 10 feet wide by 10 feet deep all the way from Lubbock, Texas, to Detroit – and then back again. Into the voids left by this vast earth-moving program the Defense Department will pour 2.6 million cubic yards of concrete, enough to make a modern six-lane freeway from Lubbock to Amarillo, with sufficient material left over to pave all of the through streets in both of those cities. And when the "hardening" job is finished, some 336,500 tons of reinforcing steel and 306,200 tons of structural steel will have been sunk into those masses of man-made stone.

Unlike any shelter recommended by the Pentagon for civilians, these are designed to protect against nuclear blast and fire as well as radioactive fallout. "Cushioned in their air-conditioned silos," *Time* magazine of December 29, 1961, reported, "the Minuteman will be able to withstand all but direct nuclear hits; the Air Force estimates that the USSR would have to fire some 20 missiles at a single Minuteman site to have a 90 percent chance of a kill. Even the commodes in the control center will be mounted on rubber to withstand

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nuclear shock. . . . If an attack heaps earth and other debris over the door, it can be blasted open."

Since the cost of "hardening" a typical complex of three Titan I missile silos (or shielded emplacements) is $20 million, and there are three such complexes at a site like the Beale Air Force Base, the added expense for construction alone – leaving out of account the additional costs of installing the equipment – is $60 million for one base in California. By comparison, the total civil defense appropriation to be asked of the Congress for fiscal 1963 is under $700 million, which may appear large – and it is, arithmetically, until one views it in the light of other Defense Department allocations. Secretary of Defense Robert S. McNamara has just proposed to the Director of the Bureau of the Budget, Mr. Bell, that there be an increase of $300 million in quarters allowance for members of the armed forces who do not live in government housing.

There are now scheduled for installation some 234 of the very large Titan and Atlas missiles, and about 600 of the Minutemen. The new budget calls for an increase of 800 to 1,200 in the number of the latter, and a doubling of the industrial capacity to produce them "against the day when that capacity might be needed." It is also planned to increase by 95 to 150 percent all "hardened" missiles.

Low Priority for People

To have missile bases that are not protected from enemy attack would be foolish. But it is worth pointing out that there is little pressure on the federal government to try to protect people on a scale resembling, even remotely, the protection that is provided for the big weapons – and the military personnel who tend them. The people are, in fact, trapped in the middle of an interservice power play run by professionals who have been trained, over the two decades since the last war, in the manipulation of hundreds of billions of Deterrence Dollars. They have always deprecated the diversion of Defense funds to any purposes other than the procurement and the protection of more military hardware and manpower. That, fundamentally, is still their outlook. "Civil" defense is not even secondary. It is a gesture – for whose benefit we do not know.

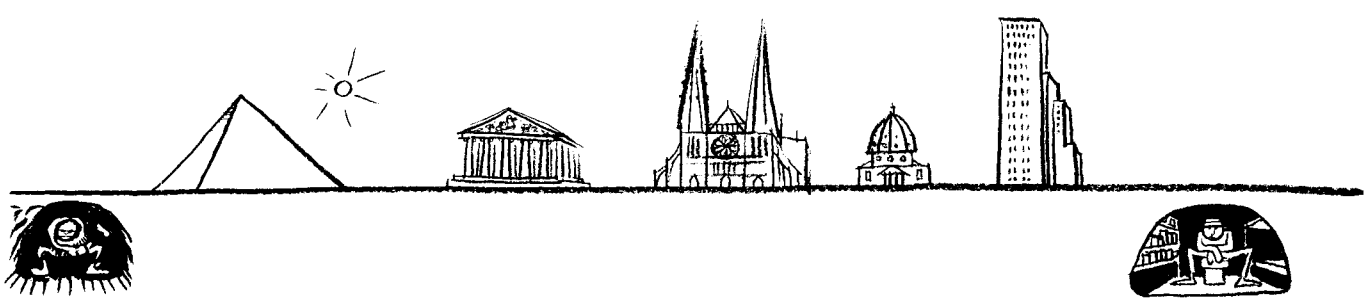
The intellectual and technical foundations of the civil defense program described in this issue were laid by quasi-academic research groups under contract to the Pentagon. Recruited from among some of the most talented thinkers and armed with electronic computers and imagination, they developed the basic attack assumptions that underlie such publications as the Pentagon's latest booklet on fallout shelters – what weight of H-bombs the Russians might drop, and where, in a future war. And these official assumptions are now dated ahead year by year into the next decade.

Who would survive and why? The Pentagon has nothing but estimates, "hardened" by formulation in a span of numbers rather than words, parametric studies in the language of the trade, worked out on imposing calculators that are "electronic" by convenience – guesses dressed up in digits. Nor has the Department, or the Atomic Energy Commission, any certain knowledge of all the effects on the American people of the bigger bombs if they are used. Admittedly, it is possible to shield a living person against a specific level of radiation under test conditions, but the quantity of radiation that may be dumped upon the nation in a future war, not to speak of the more horrible options of blast, fire, blinding light and chemical and biological warfare is literally unpredictable.

This study throws no light on how mankind might avert its destruction, though it concludes we cannot learn how from the computers. It draws no one moral, unless it is in Santayana's lines:

> "Columbus found a world, and had no chart
> Save one that faith deciphered in the skies;
> To trust the soul's invincible surmise
> Was all his science and his only art.
> Our knowledge is a torch of smoky pine
> That lights the pathway but one step ahead
> Across a void of mystery and dread
> Bid, then, the tender light of faith to shine."

THE EDITORS



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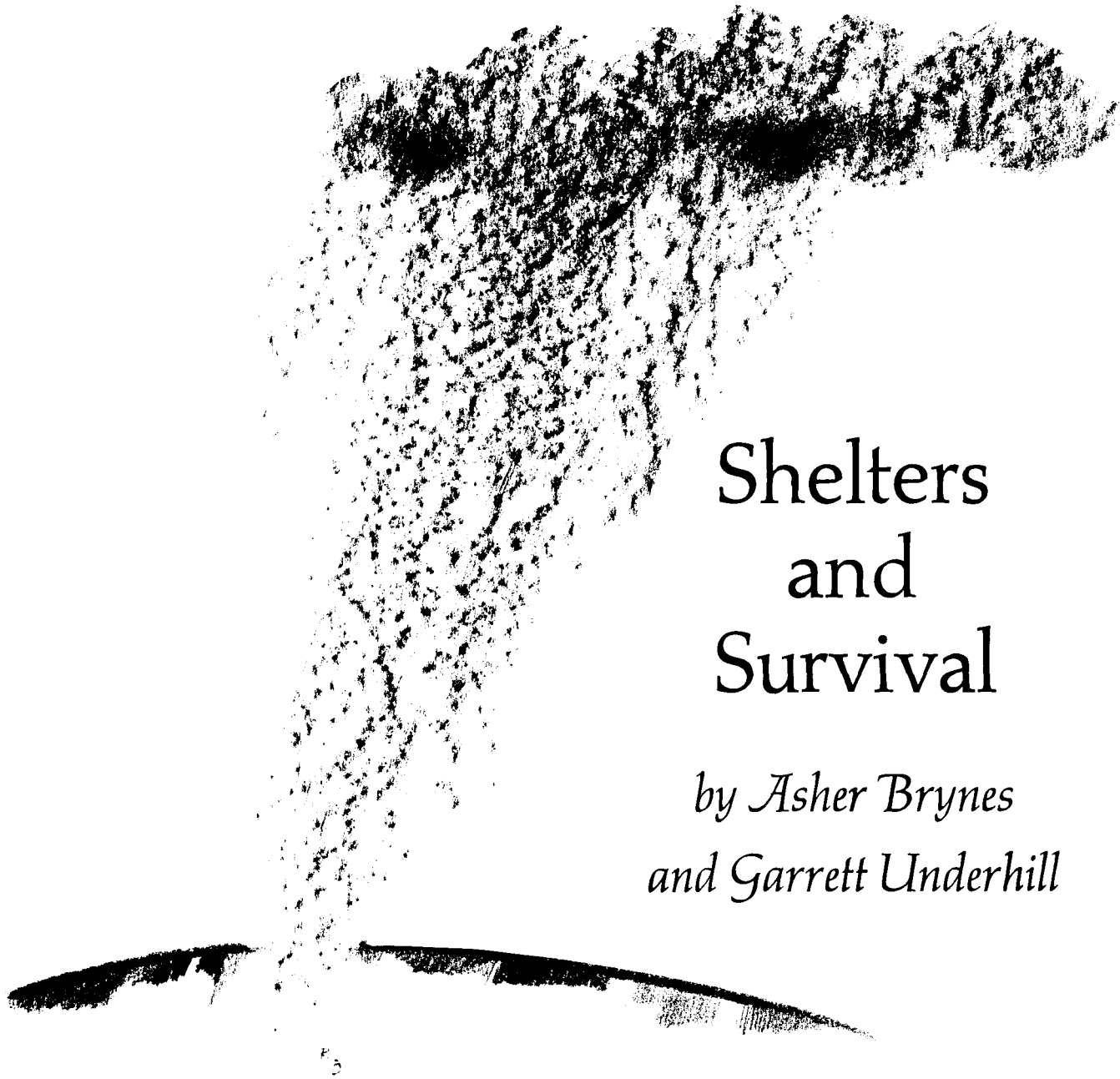

Shelters and Survival

by Asher Brynes and Garrett Underhill

On the night of July 25, 1961, the President in a special television broadcast gave the American people a virtual war warning, a partial call to arms, and a total call to civil defense. Less than three months after Mr. Kennedy's speech his Assistant Secretary of Defense for Civil Defense, Steuart L. Pittman, allowed himself to be quoted in *The Washington Post* as follows:

"Despite the 'crash-program' implications that have been ascribed to Mr. Kennedy's statements, the truth is that when he made his call for an increased civil defense effort he was talking in terms of a long-range goal. The President was not reacting to the Berlin crisis or any other immediate aspect of the world situation."

Here is what the President had said:

"Seven weeks ago tonight I returned from Europe to report to you on my meeting with Soviet Premier Khrushchev and others. His grim warnings about the future of the world, the *aide-memoire* he presented me on Berlin, the subsequent speeches and threats which he and his agents have launched, and the increase in the Soviet Military Budget he announced, have all prompted a series of decisions by this Administration and consultations within the Atlantic Community. In Berlin, as you recall, he intends to bring to an end, through a stroke of his pen, first our legal rights to be in West Berlin – and secondly our ability to make good our commitment to the two million free people of that city. That we cannot permit."

Mr. Kennedy then went on to appeal for appropriate actions and attitudes:

"We are clear about what must be done – and we intend to do it. I want to talk frankly with you tonight about the first steps we shall take. These actions will require sacrifice on the part of many citizens. More will be re-

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quired in the future. They will require, for all of us, courage and perseverance for many years to come.... The immediate threat to free men is in West Berlin. But that isolated outpost is not an isolated problem. The threat is worldwide...."

In sum, there was danger everywhere. Speaking of the Berlin crisis he said bluntly: "We will at all times be ready to talk, if talk will help. But we must also be ready to resist with force, if force is used."

In Pentagon Hands

To meet these threats carrying with them the possibility of war, the President announced that he was calling on Congress the very next day to authorize the extraordinary step of calling to the colors, in peacetime, Army, Navy and Air Force reserves and National Guardsmen. Draft calls were being doubled and tripled to fill out the Army, Navy and Air Force to increased strengths: "Many ships and planes once headed for retirement are to be retained or reactivated, increasing our tactical air power and our sea lift, airlift, and anti-submarine warfare capability. In addition, our strategic airpower will be increased by delaying the deactivation of B-47 bombers."

But, he went on, "We have another sober responsibility. To recognize the possibilities of nuclear war in the missile age, without our citizens knowing what they should do or where they should go if the bombs begin to fall, would be a failure of responsibility. ... Last week, I assigned, on the recommendations of my Civil Defense director, basic responsibility in this program to the Secretary of Defense, to make certain it is administered and coordinated with our continental defense at the highest level."

The President's uniting of military with civil defense measures as a means of strengthening the nation's defense posture in the face of immediate threats of war as well as more general and long-term threats, must be borne very much in mind in any review of the unprecedented crescendo and rapid descendo of the fallout shelter program. Previously, civil defense always had been headed by a former state Governor. In each instance the individual had been defeated for re-election and had received his job of director of civil defense as a party reward. In the past, the independent federal agency charged with civil defense had been rather small, manned mainly by minor bureaucrats and political hacks, deserving the ridicule often heaped upon them by the Congress, the press and the public.

But the civil defense program set forth by the President on July 25, and for which he urged the fullest popular support, was now to be in the hands of the Pentagon – the "highest civilian level" that plans, programs and operates a military establishment which cost an average of $40 billion a year during the past five years, close to $47 billion in the first year of the Kennedy Administration, and is expected to cost up to $51 billion in the fiscal year beginning next July. The same defense authority which manages such technological marvels as intercontinental missiles and atomic submarines thus took over responsibility for the security of the average family and home, housewives and children as well as soldiers, sailors and airmen.

Those comprising the "highest civilian level" of defense quickly identified themselves to the Congress. Secretary of Defense Robert S. McNamara appeared on August 1 before the House Military Operations Subcommittee, which had begun a close study of the handling of civil defense by the federal government in 1955.

The Secretary did not mind in the least close questioning by the committee because in his opinion the hearings were providing "a valuable public forum to interpret the new program to the Congress and the people of the United States." On the issue of responsibility, Secretary McNamara made a concise and unequivocal reply: "I think that it is entirely appropriate that your committee should hold me personally responsible for the actions of the Department of Defense in civil defense. I propose to assume that responsibility, and to insist that it be carried out properly within the Department."

Besides recognizing the need for the strong exercise of authority and responsibility over civil defense within the Office of the Secretary of Defense, Secretary McNamara put crisply into words the unity of military and civil defense measures which the President had implied by his linking of both kinds of defense in the July 25 speech. According to the Secretary: "Since any thermonuclear attack will undoubtedly find a large portion of our Military Establishment located in the continental United States, a civil defense emergency is a common concern for military and civilians alike."

Secretary McNamara then went on to explain to Congress that, "The placing of civil defense responsibility under the Department of Defense should facilitate a common [military-civilian] effort to plan for, and if necessary, to conduct emergency operations." Having military control over the hundreds of thousands of reserves and National Guardsmen mobilizable throughout the country in case of any emergency, as well as over standing military forces, the Department of Defense would be in a position to exploit military-civil defense unity of direction and planning to an incalculable extent. It would very much help, in Secretary McNamara's view, the President's decision to "revitalize" the "long-neglected" sphere of civil defense.

Previously, Secretary McNamara had told the committee that he had delegated his new authority over civil defense to Adam Yarmolinsky, the Special Assistant for Special Projects to Mr. McNamara and Deputy Secretary of Defense Roswell L. Gilpatric. Mr. Yarmolinsky was to have direct authority over civil defense within the Office of the Secretary of Defense, until a new Office of Civil Defense was created, together with a new post of Assistant Secretary of Defense for Civil Defense to head the new office.

Chain of Command

The committee wanted to be assured that such delegation would not result in taking civil defense responsibility and authority out of the direct line of the Defense Department chain of command. Mr. McNamara reassured them. Mr. Yarmolinsky would not be a mere liaison man or staff officer or adviser to Mr. McNamara and Mr. Gilpatric. He would be "a line subordinate" and "have line authority."

The civil defense of the people was thus brigaded with their active military defense, and with the same command chain: President Kennedy, as com-

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mander-in-chief, to Secretary of Defense McNamara and his Deputy Mr. Gilpatric, to Mr. Yarmolinsky (for the month of August), and thereafter to the new Assistant Secretary, Mr. Pittman.

The President on July 25 had left no doubt that he wanted action:

"Tomorrow, I am requesting of the Congress new funds for the following immediate objectives: to identify and mark space in existing structures – public and private – that could be used for fallout shelters in case of attack; to stock these shelters with food, water, first-aid kits, tools, sanitation facilities and other minimum essentials for survival; to increase their capacity; to improve our air-raid warning system, including a new household warning system now under development; and to take other measures that will be effective at an early date to save millions of lives if needed. In addition, new federal buildings will include space suitable for fallout shelters, as well as normal use."

He advised: "In the event of an attack, the lives of those families which are not hit in a nuclear blast and fire can still be saved – if they can be warned to take shelter and if that shelter is available. We owe that kind of insurance to our families – and to our country. . . . The time to start is now."

The Congress responded swiftly to the President's call. A bill to strengthen our defenses – military and civil – was sped through the appropriate committee hearings. Despite some disagreement between Senate and House, it was passed on August 7.

The public too responded.

Time magazine reported: "The speech, delivered under the deepest shadow of the crisis in Berlin, set off an incredible surge of interest in civil defense – a subject previously scorned or ignored."

Newsweek noted that, "After President Kennedy called for vigorous new civil defense programs, the nation is responding with a vengeance. The President's own eloquent statements about the duties of every man to provide for his family – plus Khrushchev's truculence over Berlin – have vaporized as effectively as the latest Soviet superbomb, the old foot-dragging indifference."

According to a nationwide survey published in *US News and World Report:* "Almost everybody in this country, it seems, is thinking or talking about what to do in case war starts and nuclear bombs fall on the US."

Civil defense officials in Washington reported that the demand for federal literature on fallout shelters rose from 10,000 requests for all of 1960, to about 5,000 per month following the President's speech. Of the 30 million copies sent out by the end of November of a how-to-do-it pamphlet on building family fallout shelters, three-fourths were shipped after the July 25 speech. The demand for the federal pamphlet, "Family Food Stockpile for Survival," grew so great that there were a million requests unfilled by the end of November. In the entire month of January, 1961, the Office of Civil Defense the Mobilization headquarters received about 4,700 queries. On August 1, the daily mail was 5,382.

Elk Grove Village Responds

The *Herald* of Elk Grove Village, Ill., records how the President's speech affected a small community, and what happened. Banner headlines in its August 10 issue proclaimed: "BOMB SHELTERS STUDY ORDERED."

"While Premier Khrushchev warns that Russia is prepared to fight over Berlin," ran the article beneath, "and while President Kennedy assures the Russian Premier that the United States is prepared to fight too . . . Elk Grove Village is preparing for the worst. Village president James Gibson has requested that the building committee head Frank Dillion look into the feasibility of having bomb shelters constructed in the crawl spaces of Elk Grove homes. Dillion has contacted A. J. Del Bianco, architect who designed Elk Grove Village, about the proposed project. Del Bianco said he is in the process of gathering information on the cost and method of building shelters. He said he would be prepared to make a recommendation to the village in a week to 10 days.

"Police chief Edward Clifford, Elk Grove civil defense director, said he thought the proposal was 'a very good idea'. 'Everybody should have something set up,' he said."

Elk Grove Village was in the big picture. It had gotten President Kennedy's word.

But in Elk Grove Village, as elsewhere throughout the country, the shelter plan ran into trouble from the start:

"Evan Stebbins, real estate manager for Centex, said difficulty would be encountered in constructing a shelter in most Elk Grove homes. 'The crawl spaces in most homes are too low and too small,' he explained."

More trouble was encountered:

"UNDERGROUND SHELTER WOULD BE UNDERWATER" ran a headline in a later issue of the *Herald:* "The high water table in Elk Grove Village will be one of the determining factors on which an ordinance restricting construction of private fallout shelters will be based.

"Village officials Monday night were about to direct Attorney Ed Hofert to prepare an ordinance for fallout shelters similar to that adopted by the city of Chicago when they learned that adoption of such an ordinance might present some muddy problems. 'According to a study the building committee is making, the Office of Civilian Defense says that a fallout shelter has to have either two feet of concrete or three feet of earth above it', said Roger Kantola, a member of the village-appointed citizen's building committee. 'Such a shelter would be 10 feet below the ground. In Elk Grove Village the structure would be below our water table which in some areas is only two or three feet [down],' he added.

"Trustee Charles Smith withdrew his motion to have the attorney prepare the ordinance. . . . Crawl space shelters have been deemed impractical because they would have little effect in withstanding the shock of a blast."

Meanwhile fallout shelters had become a village issue:

"FALLOUT SHELTERS: TO BUILD OR NOT? PASTOR DOUBTS WISDOM OF 'EM" ran the main headline in an October issue of the *Herald.*

On November 9, the *Herald* indicated

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that Elk Grove Village, which the previous month was prepared for the worst Khrushchev had to offer, was reeling from the blows that fell upon it as a result of its patriotic initiative. Under a headline CIVIL DEFENSE CLASS FOR ADULTS IS A FLOP, it reported that: "Elk Grove Village joined other communities across the nation this week which are floundering in the wake of what to do about civilian defense. School teacher Ronald Glovetski this week labeled as ineffective a state-sponsored 'Training Program for Teachers of Civil Defense Education for Adults'. Glovetski felt no more information was made available to those attending the course than is available by reading daily papers. The government-published literature which was supposed to supplement class instruction was not received. . . .

At Home or At School?

"According to Roger Bardwell, superintendent of schools: 'We cannot make any plans for civilian defense preparation in the schools, because so far no one seems about to make any recommendations as to what we should do. We don't know whether, in case of attack, we should send the children home or keep them at school or what to do.'

"Elk Grove Village officials too, are uncertain about recommendations for resident civil defense," the article continued. "Trustee Frank Dillion reported Tuesday night that he had attended a civilian defense conference during the Illinois Municipal League convention last weekend. 'I hope to meet with our civilian defense people in the village and have a report within the next week or two,' Dillion noted. 'But,' he added, 'we don't know at this point what recommendations will be made as far as individual shelters or a shelter program for school children go'."

Although President Kennedy's electrifying call to action was on July 25, the "highest level" of the Defense Department did not get around to appointing an Assistant Secretary of Defense to head its new Office of Civilian Defense until August 31 – by which time Elk Grove Village and many other local communities were off the mark and running at a brisk pace, though they could not seem to find out where.

Suppose the Jones family in Elk Grove Village had the financial means to build a private family fallout shelter and the garden or yard space for it (with the water table so high on the average, a very logical assumption is that only outside above-ground shelter could be practical). Why then did the Jones' not build one? The how-to-do-it pamphlets on federal shelter designs had been distributed by tens of millions. Surely the Jones' could have secured one, if they had half tried. And the pressure for them to do something was not only coming from Washington. There were strong words spoken in the new Church of the Good Shepherd on October 4. A prominent businessman and Navy reserve lieutenant by the name of F. J. Vignola spoke vigorously, warning a group of 70 guests of the Elk Grove Newcomers Club: "In the event of a nuclear attack individuals will have to take care of themselves because there will be no one to help you." He continued: "If you cannot build a separate shelter, at least give yourself the protection of a reinforced central room in your home stocked with food, medicine, and sanitary supplies." He noted that an expenditure of $50 for food and an estimated $100 for room reinforcement would provide the basic necessities of fallout protection. Literature on home survival, civilian defense, and home shelter might be obtained from the state office of civilian defense located in the Museum of Science and Industry in nearby Chicago, he advised. "He urged residents to obtain this literature, study it and follow a 10-step home survival plan," the *Herald* reported. The *Herald* noted that Mr. Vignola had been trying to "sell" people on the need for home civil defense programs for seven years. He had received a personal citation from former President Eisenhower noting "his contribution to the civil defense program" and that he had "reviewed civil defense organization at both the national and local levels."

Yet the *Herald* failed to report any action on the family shelter front. Why?

The evidence sifted from the pages of the *Herald* indicates that Elk Grove Village was closely tied in with press, radio, and television to what was going on throughout the nation on civil defense, and to what was being said and done (or not done) in Washington. The media of public information were evidently working extremely well, but obviously what was being fed into them – and what was in a sense self-generated – was more confusing than informative or instructive.

Thus to understand why the Jones family and the Villagers failed to build shelters, it is necessary to review the debates raging publicly in all circles, about seemingly all aspects of civil defense – including many that patently were not pertinent and added only to the compounding of confusion. Such debates, seen in retrospect, would appear thoroughly to have eroded whatever motivation for individual or family initiative there may have been created by the President's July 25 speech, despite subsequent reinfusions of motivation by Soviet general threats and bomb testing, and the various bad turns in the general world situation.

. . . And Back in Washington

To begin the Chronicle of Confusion, we must shift the scene from Elk Grove Village back to Washington.

Appearing September 4 before the Senate Committee on Armed Services which was to confirm his appointment, the new Defense civil defense chief, Mr. Pittman, gave evidence of the sort of guidance the federal government proposed to provide. He was taxed by Sen. Howard W. Cannon, Democrat of Nevada. The Senator had some direct interest in the effectiveness of civil defense and fallout shelter programs. Although the state he represents – Nevada – appears to have no prime military targets within its confines, a good deal of the state is downwind from a very tempting military target: Beale Air Force Base, 11 miles southeast of Marysville in northern California. Beale is a double-payoff target

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(in Nevada they are used to calculating simple odds) because it is a Strategic Air Command base both for aircraft, and for an intercontinental ballistic missile squadron. Aircraft and missiles are two principal elements of the US "active deterrent" against which, according to the currently-held theory of the Department of Defense, an attack upon the US would first be concentrated. It is believed that the missile bases would receive particular attention, in order to prevent US "retaliation." Hence the "megaton magnet" term for such bases: they will draw the first fire of the enemy's multi-megaton thermonuclear weapons, as a magnet draws iron filings.

If Beale Is Hit

What is likely to make Beale, as a missile base, especially unappealing for Senator Cannon and his constituents who are downwind, is that the ICBM squadron based there is armed with the Titan I, rather than with the Titan II or Minuteman missile. Authorities agree that since it would take a Soviet ICBM a mere 30 minutes to reach its target in the US, the best that can be expected with the warning systems available perhaps for some years to come is 15 minutes warning. Therefore, when warning of an attack comes, and the squadron receives the order to fire, each Titan I crew and complex has a very, very tight countdown procedure to which they must adhere, to assure that they get their missile off before the site is decimated by an incoming enemy missile. Obviously, hostile commanders might try to hit a Titan I before it got off, especially if they had what they considered a sufficiency of missiles to risk the try. If so, the fallout will be very, very dirty. The squadron at Beale has nine missiles, deployed over a fairly wide area, in complexes of three each. Each missile is kept in a concrete "silo" 44 feet in diameter, buried 160 feet deep in the ground. In Pentagon jargon, these are what are known as "hardened" missile launching sites: ones designed to provide considerable resistance to the blast (including cratering effect) of what were considered, until the Soviet nuclear tests of the 55 megaton superbomb, large thermonuclear weapons. The particular Titan sites at Beale are intended to provide protection against so-called "overpressures" up to and including 100 pounds per square inch. To effect such protection, the "silo" of each missile has atop it very thick and heavy sliding steel doors. The concrete is well reinforced.

Airbursts of bombs, which may not produce any of the sort of fallout the Kennedy Administration shelter program is designed to counter, are unlikely to damage such Titan sites. To really do damage to such "hardened" bases, the bursts, according to general belief current in the US, will have to be surface ones, with great cratering effect. What then takes place is well described in a remarkable pamphlet, *The Effects Of Nuclear Weapons On Tucson*, prepared by Thomas L. P. Martin, Jr., Dean of the College of Engineering of the University of Arizona:

"In the early stages of a surface burst, immense quantities of dirt and debris of all types are taken up into the fireball. [Dr. Martin fails to note that the fireball would be itself huge: as much as four to five miles in diameter for the 50 to 100-megaton bombs the Soviets appear now to favor.] This material may range in size from very small dust particles to fairly large chunks and pieces. But, this material becomes radioactive regardless of its size.

"The larger pieces fall to earth rather quickly (in the first hour or so at the most) and form a nearly circular pattern on the ground. . . .

"The smaller radioactive particles return to the ground more slowly and tend to fall over a very wide area in a direction downwind of ground zero [the target]. . . . Enormous areas are contaminated in this way; the ellipse [of radioactive fallout] may be hundreds of miles long."

Mr. Pittman Meets the Press

In case of an attack on Beale instead of upon Davis-Monthan Air Force Base at Tucson, Senator Cannon's constituents in Nevada would certainly be in the area of contamination.

And so, Mr. Cannon remarked during the hearing on Mr. Pittman's confirmation, " I certainly hope that your new office would not relax a moment in the planning to see that the states and the communities are following a reasonable plan. . . . I hope certainly that you will have some very firm planning and some authorized directions in which the expenditures of funds can be made and in which the operation should be directed."

Mr. Pittman was very reassuring:

"Well, let me say this, Senator: a week ago, as you know I am not really aboard here, I asked those who have operating responsibilities in the Defense Department on Civil Defense to pull together the opportunities that may exist for the Defense Department Office of Civil Defense to more effectively use all of the influence and leverage it has on the local programs so that we could be sure that, as we move into next year, we could make the most of our opportunities for leadership, I am talking and thinking in terms of hard operating activities offering leverage for maximum leadership, not in terms of public statements and visiting with governors."

Mr. Pittman then proceeded in disregard of his last sentence: "Incidentally, the Governors' committee on civil defense is coming to Washington on Sunday [Mr. Pittman was testifying on Monday], and we are going to meet with them and we are going to try to develop an approach to the problem that you have raised."

This same Governors Conference Civil Defense Committee had conferred with President Kennedy the previous May 9 – four months before Mr. Pittman first met them – and, being told by the President that he hoped to have a strengthened civil defense program ready in a month, the Governors left Washington saying that they would be back in a month "to get details." As matters turned out, the program was not promulgated until after the transfer of authority for civil defense to the Department of Defense by the Executive Order of July 20. So here the Governors were, back again in Washington a third of a year later "to try and de-

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velop an approach" to the key problem of the improvement of federal-state-community co-operation in the field of civil defense.

Meanwhile, Attorney-General Robert Kennedy was reported by the AP as saying "he plans no shelter until a Federal policy is established leading toward shelters for everyone. 'Until then,' he said, 'I'm going to wait'." He is presumably still waiting, for no such policy has been established.

Mr. Pittman's first press conference on December 1, 1961, afforded an opportunity to see what he meant by "hard operating activities offering leverage for maximum leadership" of state and local civil defense. The conference was called to announce the start of a survey of potential fallout shelter space in public buildings. These would be community shelters. One reporter was concerned about how a person would know he would have space available to him, and whether people might not overflow a given shelter and leave another vacant. Mr. Pittman replied: "[In] the range of problems you mentioned, we have worked out some procedures which we are going to suggest to state and local civil defense organizations, but we anticipate that the responsibility in these areas will be local, and one of the things – another by-product of this [fallout shelter] survey is strengthening local civil defense organizations a little earlier than would otherwise happen because they have a real problem now."

Poor Elk Grove Village! It had been told it had a "real problem" back in early August. Now, months later, there came the news that in some mysterious manner they might get some "strengthening" from the federal government "a little earlier than would otherwise happen." Earlier than what?

A reporter then put the question directly: "Do you have to have a traffic control system for each shelter?"

"Without going into detail," Mr. Pittman replied, "these are local government problems and we are calling on local governments to take them on. . . . We will give some guidance."

Four months earlier, Representative William E. Minshall had appeared before a Congressional committee to promote a bill he had introduced to grant tax exemption to citizens who construct home fallout shelters: "My home city of Rocky River, in the 23d District of Ohio, pioneered in home shelter construction. My state of Ohio was the first in the Union to grant tax exemptions to citizens who construct such shelters, or who improve existing facilities to provide protection. Such legislation on the national level is highly appropriate." At the time Mr. Minshall's bill was before the House Ways and Means Committee, which was awaiting advice from the Treasury.

When a reporter asked Mr. Pittman what the current government position was on tax incentives, Mr. Pittman replied: "No decisions have been made on tax incentives in this area."

Reporter: Wait a minute, Mr. Pittman, I would like to raise a question which has been ignored in the past. I hate to do this to you, since this is your first press conference. But I personally object to limiting the press conference to any particular number of minutes when this matter is of such wide public interest. I think an hour is inadequate to discuss this. . . . There are many questions . . . not answered."

Mr. Pittman: Of course there are. What I think we should do is have a press conference as soon as we can talk about the future. I think that is mainly what is in people's minds.

Reporter: What are we talking about now?

Mr. Pittman: We are talking about the present.

Reporter: I beg to differ with you.

Mr. Pittman was to say later, "The important thing is to get moving. This is a long-range program; we'll work out the answers as we go along."

Confusion on Olympus

While Mr. Pittman was "talking and thinking in terms of hard operating activities," other authorities were busy contradicting each other, and not infrequently themselves. As the *Washington Daily News* described the state of civil defense early in December: "C is for Confusion; D is for Dilemma."

In his speech to Congress the previous May 25, the President had propounded the concept that civil defense is not "deterrence" but "insurance": "This Administration has been looking very hard at exactly what civil defense can and cannot do. . . . It cannot deter a nuclear attack. . . . We will deter an enemy from making a nuclear attack only if our retaliatory power is so strong and so invulnerable that he knows he will be destroyed by our response. If we have that strength, civil defense is not needed to deter an attack. If we should ever lack it, civil defense would not be an adequate substitute."

The President then spelled out his "insurance" concept:

"But this deterrent concept assumes rational calculations by rational men. And the history of this planet is sufficient to remind us of the possibilities of an irrational attack, a miscalculation, an accidental war which cannot either be foreseen or deterred. The nature of modern warfare heightens these possibilities. It is on this basis that civil defense can be justified – as insurance for the population in the event of such a miscalculation."

The President was flatly contradicted by his top military authority, the Chairman of the Joint Chiefs of Staff, Gen. Lyman Lemnitzer. The General said, on August 1, in a formal statement to Congress when being questioned about the new civil defense program: "As regards the contribution of civil defense to deterrence: The extent to which we have the ability for defense against an attack, particularly the initial attack, or to minimize the effects of an attack, is an essential element of deterrence. Any doubt in the mind of a potential enemy with respect to his capability to deal us a decisive blow makes less likely the possibility that he will initiate a nuclear attack on us. This, then, is the important way in which civil defense contributes to deterrence. It provides further unmistakable evidence of serious determination on our part."

A month before the President spoke, his Secretary of the Army told the House Defense Appropriations Subcommittee Chairman, Mr. Mahon of

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Texas, that "the Army considers civil defense preparedness an essential element of a successful strategy of deterrence."

Governor Nelson Rockefeller of New York, also Chairman of the Civil Defense Committee of the Governor's Council which keeps beating a path to and from Washington, also insisted that civil defense is part of deterrence. So did Mr. Frank Ellis early in the year, after his appointment by the President to be Director of the now-defunct Office of Civil Defense and Mobilization.

Another dissent to the President's view of civil defense as "insurance" ("It is insurance we trust will never be needed – but which we could never forgive ourselves for foregoing in the event of catastrophe") came from J. A. Livingston, nationally-syndicated economic columnist and respected authority on business practice. He wrote in one column that shelters are very high risk insurance, that there is no way of distributing the "insurance" cost of an individual shelter, or even one built by a group: a family or group fallout shelter is plain bad economics.

Bases or Cities?

While the argument over the purpose of a shelter program was going on, a related controversy began to develop, and on the most authoritative levels, about whether only US military bases were likely targets, or cities, or both. The answer was critical to any estimate of what use shelters will be, where they need most to be built, what kind.

The Office of Civil and Defense Mobilization booklet which appeared in June, 1959, *The Family Fallout Shelter*, and of which over 22 million were distributed on public request after President Kennedy's July 25 speech, put the "attack assumption" in the plainest of terms under its opening heading "Fallout Shelter Is Needed Everywhere":

"One thing is certain if this country is attacked with nuclear weapons: our air and missile bases will be primary targets.

"The enemy would try to knock out our retaliatory power.

"He might [the pamphlet speculated] also try to destroy our cities."

Adam Yarmolinsky was of the same view as late as October. In a talk to the Women's National Democratic Club of Washington, trying to answer the question the ladies had about whether there is any sense in building a fallout shelter in what might be a target, and therefore, a blast and fire area, he said: "A reasonably planned enemy attack, now, or in the next few years, would concentrate on military targets. Few weapons could be spared for cities . . . I do not think Washington would be a major target." According to his reasoning, an attacking enemy "would be well advised" to spare Washington, so that there would be "an existing government with which to deal." And he added: "Killing large numbers of civilians does not win wars – even nuclear wars."

The Pentagon immediately "clarified" Mr. Yarmolinsky's statement. Mr. Pittman made clear to the press that cities, and specifically Washington, might be targets. Secretary of Defense McNamara seemed to include cities as targets in a somewhat waffly way: "I do believe that it is sufficiently probable that in the event of a nuclear war our cities would be attacked, to take account of that possibility. I think it is at least as likely that our cities would be attacked as that our military targets would be attacked. I don't share the views of some that only the military installations would be attacked."

However, Roger S. Cannell, of the Stanford Research Institute, consultant to the Office of Civil Defense and Mobilization and to the Department of Defense, and now a member of Mr. Pittman's staff, had told Congress earlier that the "military bases first and maybe only" theory was based upon "the least attack we would expect." And he made equally clear that it was on this minimal attack assumption, that the whole Kennedy Administration fallout shelter survey and marking program was based. Moreover, in March, 1960, as manager of the Stanford Institute's Industry and Civil Defense Research, Mr. Cannell had prepared a very thorough and well-illustrated booklet on a survival program for the Institute's employees and their families. Called *Live*, it had three alternate plans. All assumed that: "A surprise Soviet attack on the US would almost certainly begin with a strike on SAC bases (*e.g.*, Travis or Castle Air Force Bases) and missile sites. Secondary military targets would include naval installations and interceptor airfields (e.g., Hunters Point, Hamilton Field, Treasure Island, Alameda, and Moffett Field). . . . After military targets, the enemy might strike strategic industry such as Lockheed's missile plant. . . ." Last on his list were cities: "Finally, population and non-strategic industry could be targets."

By November, Mr. Cannell was not only making stronger the relative priorities he had given in his booklet, but was flatly disagreeing with Secretary McNamara and Mr. Pittman. Under the headline "A-Attack on Area Unlikely," the *Palo Alto Times* reported: "An enemy nuclear attack would probably *not* be aimed at the mid-peninsula in spite of Lockheed's production of missiles, Roger S. Cannell, Stanford Research Institute's top civil defense expert said today. Cannell predicted that any enemy would probably direct an initial strike at America's military bases and missile launching sites, rather than population centers and industrial areas."

No wonder *The Washington Post* editorialized: "Depending on whether they follow the Gospel according to Adam Yarmolinsky who thinks the Russians wouldn't aim at anything within a million miles of here or the Gospel according to Steuart Pittman who thinks everybody ought to be ready for anything, [Washingtonians] are poised in expectancy. . . . As so often seems to be the case, everybody around Washington appears to be about as ready for Armageddon as people elsewhere."

Profitable Targets

The confusion in Washington and Palo Alto as to whether the Soviets would strike at bases or cities, was general. At Fort Collins, Colorado, the town paper reported in October: "Local interest in civil defense was heightened by an announcement of the Denver regional civil defense office [a federal agency] that Larimer county had been listed with 12 other Colorado and Wyoming counties as 'a prime nuclear war target'. Officials say the rating results from the presence of missile launching sites in Larimer and Weld counties and in the Denver area [those Titan missile base complexes again]. They said the listing of prime target

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areas was intended to impress county government with the need for civil defense preparations."

That seemed plain enough. But shortly thereafter up spoke the Larimer County Civil Defense Director, retired General Irving O. Schaefer. He, as the Fort Collins *Coloradoan* reported, "expressed doubt that the missile bases would be considered as initial targets by an enemy, since their missiles could be fired quickly in response to an attack and an enemy would have no reason to attack them thereafter."

And that was all the more confusing because, as in the case of the missile base near Marysville, California, the 848th and 849th Strategic Missile Squadrons at the Lowry Air Force Base near Denver are armed with Titan I's, which, as we have noted, have a relatively slow "reaction time" – it takes 15 minutes from the order to fire to get them in the air – so that if the Soviets are going to shoot up any missile bases, they may well find those complexes of silos most "profitable" targets.

That Long-Awaited Booklet

All America was waiting for that long promised, authoritative booklet from the Department of Defense on what a citizen could do to protect himself and his family. Mr. Pittman too was waiting – and working. When he had been asked at his first press conference on December 1: "Do you have a fallout shelter in your home?" he replied: "No, I do not." But he said: "I have somewhat the problem many others have. I see a range of choices. I plan to put one in . . . I have not made up my mind which one to take, and I really have not had time to come into focus on it. . . . When the information is out to the general public, and it is a little clearer what is on the market, and what you can do if you can't take out the time – and I don't think I am going to do it myself – I am not going to get around to it – I think I will wait to see what appears and make my choice within a couple of months."

In answer to the question: "Is it correct to believe, then, that you believe every person who can afford to build a fallout shelter should do so?" Mr. Pittman applied his own personal policy to public policy: "People are not going to have all the answers at once. They will know a lot more when we come out with the information I referred to."

The information he referred to did come out 30 days later – in the booklet now being distributed by the millions, *Fallout Protection, What To Know and Do About Nuclear Attack*, issued by the Defense Department and available free at all post offices as of January 2, 1962.

In a letter to the *Washington Post* James R. Newman, an editor of *Scientific American*, whose books include *Science and Sensibility* and *The World of Mathematics*, let loose, characterizing the booklet as "a contemptible public relations hoax. It is designed to make you think you have a chance when, in fact, you have none."

That the booklet is, in many parts, rather casual and cryptic cannot be denied. Thus, in speaking of the "flash of an explosion," it merely advises: "Don't look at it." It doesn't say why. Perhaps because the explanation would be too upsetting. For another horrific effect of thermonuclear weaponry is the retinal burn. The intensity of the light of the initial burst, and also of the later fireball, has been reported by the Atomic Energy Commission as sufficient to damage or destroy eyes in direct line of sight up to 350 miles or so distant from the air burst.

Nevertheless, the booklet goes into considerable detail in explaining what a family or a community should do. And in his ironic description of these recommendations, Mr. Newman in his letter on January 1, 1962, may not be unjust: "There are various structures from which to choose. For $150 one can build oneself a small box of concrete blocks in the basement. There is a two-color picture on page 20 showing mother, father, and sonny putting the box together, loving every moment of their labors. The next page shows a lean-to basement shelter into which one can shove three souls if they are prepared either to lie on top of each other or adopt the knee-chest position.

"If you don't have a basement you can make yourself a plywood box outside, mounded over with earth, or, if you prefer the Dracula style, built totally below ground level. Especially appealing is a prefab backyard underground shelter made of a corrugated steel pipe unit (four foot diameter) with entry and air-vent pipes, the ends stuffed with sandbags. This can be bought for less than $150. The picture showing father working the blower while listening attentively to mother who is reading aloud to their son, makes one realize that there is nothing as rewarding as family life. . . .

"If you don't have $150, and are not ingenious enough to dig a trench next to the house and make a 'lean-to structure' with house doors – that is, if your house has doors, and you can get them off in time, and don't mind living in a doorless house until the big moment comes – you don't have to give up and slit your throat. Big Brother remembers you even if you are poor or stubborn. Immediately after the flash of an explosion you are invited 'to dive under or behind the nearest desk, table, sofa or other piece of sturdy furniture.' The important thing is to try to get in a shadow, to lie curled up on your side with your hands over the back of your neck. If you are outside, run into a building and curl up, facing a corner. And if you cannot find a building, throw yourself into 'a ditch, gutter, or depression in a lawn,' and curl up. . . .

"The hints on 'emergency housekeeping' are encouraging. Almost any kind of water we are told is drinkable. If it has germs in it you can boil it 'vigorously', presumably on the electric stove you will have in your box, in the oven of which you can, if necessary, keep the baby – after making sure that the oven is turned off. Or you can add iodine to the water (not more than 20 drops to a gallon unless you have decided to make a final exit).

"If there are radioactive particles in the water you can run it through a water-softening device, which you will of course install in the shelter; or you can throw clay into the water and

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allow it to settle. Almost any kind of food is edible. Mouldy bread does no harm; sour milk is drinkable; rotten vegetables can have the 'rotten spots' cut out; canned and packaged animal foods 'can be eaten by humans without harm.' Ten thousand calories are adequate for an adult during 'an inactive two-week shelter stay.' Remember to stock the foods you like because 'they are more heartening and acceptable during times of stress.'

"Enough. Nothing, I should think, more markedly exposes the irresponsibility, the indifference, and the duplicity of the government's civil defense program than this pamphlet."

Experts and Experts

Fallout Protection, What To Know and Do About Nuclear Attack perpetuates many of the fallacies common to the civil defense program from the beginning of the debate in late July, 1961. What makes it an historical landmark, however, is that for the first time, a defense agency found it necessary to support its own promulgations by citation of outside unofficial authority. In a *Foreword Concerning This Booklet*, signed by Secretary McNamara, there appears the statement: "The factual information in this booklet has been verified by independent scientific authority."

In reading this, remember that the federal government funds from two-thirds to 70 percent of all the money the nation spends annually for research. Of the federal portion, about 90 percent is spent by the Department of Defense or by the Atomic Energy Commission (or similar agencies) for military purposes. Taken together, the Department of Defense and the Atomic Energy Commission ought to have all the "factual information" available on the nature of and protection from a nuclear attack. Why should its booklet need "independent" sanction?

Perhaps, as reporters discovered, because the Pentagon had *not* been able to get the "scientific" support it desired from the National Academy of Sciences' Civil Defense Advisory Committee. The Pentagon had planned to preface the booklet with testimony to its accuracy by the Committee. The idea was abandoned, partly because the Committee and the Pentagon failed to agree on the wording of the letter; and partly because some Administration officials did not believe the Committee should be considered as the authoritative spokesman for the entire national scientific community.

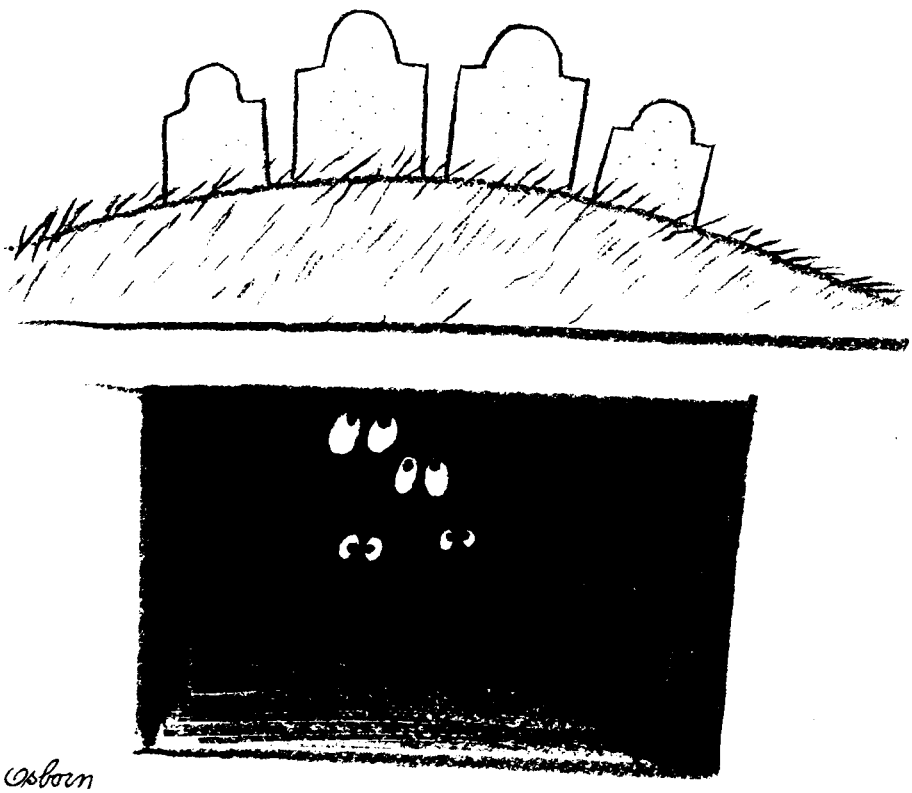
Moreover, even though the outside scientific authorities may have vouched for the accuracy of the data in the booklet, what the Secretary does not say is that they checked on its adequacy. In fact, he clearly implies the contrary: "This program necessarily rests on judgments about what might happen and our evaluation of scientific facts. Judgments may differ. It is my considered judgment that this is a reasonable and prudent program – and that it is the best program we can have, measured against the other priorities of our national life." What facts were selected, then, did not depend upon any scientific verification of pertinence and completeness.

Five Megatons, For Example

Perhaps the most puzzling feature of the booklet is its use of a 5 megaton hydrogen bomb as an example of what would be used in an attack situation, when the Soviet, in their autumn test series, had burst bombs in the range above 20, climaxing with the 55 megaton monster – and a 100 megaton one promised as feasible. When asked why only a 5 megaton blast is specified, a Pentagon spokesman replied that the size was merely for illustration. The implications are strong, however, that bombs over 20 megatons would make any civil defense appear impractical to impossible, even to the citizen of 8th grade education for whose comprehension the booklet was written.

According to report, *Fallout Protection* was master-minded by one man: Donald Thomas, an old-timer at civil defense. He had been brought to the Pentagon from the former Office of Civil and Defense Mobilization headquarters at Battle Creek, Michigan (where he was chief of publication), after a team of *Time-Life* writers had submitted a document considered "too optimistic" in tone. Mr. Thomas' view is that "there is only one way to get into this world and only one way to get out of it. If I have to go, I think I would be a little bit proud of myself for having tried to do something."

In point of fact, the booklet is not the full guide and shelter plan manual promised. The latter is to be a separate booklet, entitled *Family Shelter Design*, which is still to come.



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Through a Glass Darkly

The first stage of the Kennedy Administration's civil defense program, as we have seen, was to find, mark, and stock available fallout shelter in public buildings meeting certain standards. It was estimated that some 40 to 50 million spaces would be found, and the cost of finding and marking them was to be around $93 million. In July, 1961, some $206.7 million was added to civil defense funds already voted by the Congress, so that the total for 1961 came to about $307 million. It was further estimated that by July, 1962, some 20 million below-standard spaces would have been located which could be brought to standard, it was thought for $1.5 billion.

However, on December 14, Deputy Secretary of Defense Gilpatric announced that in the budget for the next year (fiscal year 1963, starting in July, 1962), less than $700 million in all was to be asked of Congress for federally-funded civil defense. Of this, not more than $500 million was to be for community shelter. And this money was to be spent only if others – schools, hospitals, etc. – put up about one-third of the cost. In effect, the federal government halved the funds for the second stage of the program talked about the August before, and of that half, the federal government was now proposing to pay only two-thirds. As for rural families or others who live far from any possible community shelter – or who wish to build it themselves – they must, if they can, pay three-thirds. This is the "economics" of the booklet released by the Department of Defense at the end of the year. On the other hand, it was not the "economics" of civil defense implied in Secretary McNamara's remark in August: "I think it quite clear that the program of [federally-identified, marked, and stocked public building space] shelter . . . is not by itself, a solution to the nation's fallout shelter program. Additional action will be required both to provide additional public shelters and, I am confident, eventually to provide private shelters. . . . Exactly what form these private shelters should take and how they should be financed, I am not prepared to say. . . ."

Still, Mr. Holifield asked the Secretary, "In your response to Mr. Riehlman [a committeeman] you did say that the plans are to give protection to the greatest number of people in the shortest length of time?"

Mr. McNamara replied simply: "Yes."

Under further questioning, the Secretary firmly asserted that "we have no intention of allowing this program to take several years to be completed." (Later in the year, discussing a new home buzzer warning system called NEAR, he said: "If the NEAR system is to be installed on a national basis, it will require an additional investment *over a three or four year period* of some $50 to $60 million.")

At least one member of Congress saw the "new" program for what it was. Mrs. Martha W. Griffiths, of Detroit, remarked to civil defense officialdom: "The only point I make . . . while I congratulate you upon a beginning . . . is that this is just no shelter program."

In fairness to Mr. McNamara it should be emphasized that he is bedeviled, as is everyone, not merely by budgetary concerns, but by ignorance. His aide, Mr. Pittman, said as much in October. Although "we can tell the people a great deal to fill the void which is otherwise filled only with anxiety and fear . . . neither you, nor we nor the scientists have all the answers." Over a month later, the research chief for the Deputy Assistant Secretary for Civil Defense made a confession far broader than Mr. Pittman's. "We know far less than we would like to about fallout from a major weapon," Walmer E. Strope said. "The statement that we need shelters, and we need good shelters, is about the best information we have."

And in corroboration of Mr. Strope's confession, the Federation of American Scientists released a statement within a week from its Washington headquarters, which began: "Oversimplifications in the public press recently have tended to produce the misleading impression that the individual can by his own efforts insure his survival in the event of any nuclear war.

"The Federation of American Scientists considers the shelter issue unusually difficult as it involves measures and estimates that are without precedent. Shelter planning involves many technical considerations not easily conveyed to the public, many of which depend in some degree on information that is unavailable – either because the information has not been released, or because it is not known in the United States, or because it depends on decisions not yet made, or because the effects involved are imponderable."

Just after Christmas, 1961, the oldest and most eminent scientific body in the United States seconded this view. In a paper published in the American Association for the Advancement of Science's weekly magazine, the AAAS's Committee on Science in the Promotion of Human Welfare noted that new weapons of unlimited warfare – nuclear, chemical, biological – "have not had a substantial trial in actual combat," and added that "there is therefore no historical evidence that adaptation and survival are possible in this type of warfare, or that these untried weapons can achieve the purpose for which they have been developed – the protection of nations and social orders. . . ."

The Escalation of Weaponry

Addressing itself directly to the worth of shelters, the Committee observed: "In general, the development of a shelter program cannot greatly influence the conclusion that a massive nuclear attack would have the immediate effect of destroying the social structure." The Committee saw two reasons why shelters would be ineffective. First: "A particular shelter system is designed to resist a certain assumed intensity of attack, and its success depends on the validity of this assumption." (The Federation of American Scientists earlier had said: "It is clear that reliable information concerning present Soviet war plans – whether they would chiefly attack cities or strategic forces – probably does not exist in the Administration, and certainly has not been made public.")

A second reason given by the AAAS Committee as to why a shelter program would most likely be ineffective is that it would invite "escalation" of attack weaponry: "An opponent can be expected to respond to such a defensive

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move [as shelter] by stepping up the intensity of the attack. . . . In the 16 years since the first nuclear explosion the size of available weapons has about doubled every year." (The Federation of American Scientists was in substantial agreement about "easy escalation" destroying the value of shelters: "Although a modest fallout shelter program offers substantial protection for the near future and for some kinds of attack, it offers appreciably less protection under other kinds of attack that might occur in the immediate future, and still less against possible strategic forces that might evolve later.")

The AAAS Committee further stated that the outcome of a weaponry versus shelter race – offense versus defense – would be self-defeating: "Any shelter system short of one that places the nation's entire population and industry permanently underground can be negated by a corresponding increase in the attacker's power." And the Committee agreed with those who say that "the deeper and deeper emplacement of more and more of our activities into underground shelters would, even in the absence of nuclear war, make profound changes in our normal social structure." Economic dispersal the AAAS Committee didn't even bother to consider.

The Committee felt "obliged to reassert that the analytical powers of science, which have up to now helped to guide society toward its present levels of accomplishment, fail to predict whether human societies would ever return to their present state of competence following a nuclear war." Very definitely, "if society embarks on the path of nuclear war, science cannot now offer enlightenment on the end result." Nor could the Committee offer much enlightenment on a more immediate disaster, in Texas.

The Dallas, Texas, *Times Herald* reported late in November under the headline "No Fallout Here, Just a Cave-In": "Mrs. George C. Smith of 240 South Shore has a bone to pick with a bomb shelter company since Wednesday's rains ruined her fallout shelter, but she hasn't been able to reach the outfit that built it.

"I've telephoned and telephoned, and all I've gotten is a recording which says to leave a message and they'll phone me back. But they've never phoned back," Mrs. Smith said.

"The Smiths, sold on the need for family protection of a fallout shelter, bought a $2,500 steel and concrete fallout shelter which fell in, rather than keeping out the fallout, after Wednesday's heavy rains.

"Mrs. Smith said the shelter is ruined. The concrete has crumbled in like a 'pound cake,' she said, and the shelter caved in and flooded."

"I checked with the Better Business Bureau and did everything I could to see that the company was reputable before we ordered the shelter," she said. "We can give thanks we found out that the shelter was faulty before we had to use it."

Mrs. Smith's cave-in may have been partly the result not of malpractice but of lack of know-how. In October, 1961, Tennessee officials were finding that the ordinary citizen and many contractors knew little about shelters and their construction. Stanley Alpaugh, retired Army officer and liaison officer with Tennessee Civil Defense, drew up plans for a yard fallout shelter, paid a contractor $1,635, then finally found the shelter failed to meet specifications. "Some people just don't understand these shelters must have every void filled, or the finished job will provide little more protection than a house," he said. "I have a bee-hive." Col. Robert Fox, State Civil Defense Director, said that 27 of 30 shelters he had examined similarly failed to meet minimum specifications.

Consider the problem fallout shelter poses for the creative engineer. Engineering is what makes things and makes them reliably. The engineering standards for autos and trains and planes are what shelter, if such were possible, also requires. But such standards cannot be extrapolated from virtually non-existent data and operational experience (two atom bombs have been used in war; no thermonuclear ones). Shelter engineering must then necessarily be based, until at least far more testing is done, on the wildest, most far-out imagineering.

The TV-viewing and newspaper-reading public is well aware of how many missiles blow up on the pad, or go awry in early flight. But few are aware of the similarity between the narrow experience base of such missilery, and the still narrower experience base of shelters. Yet the contrast between these experience bases, and that of military bombers and civilian air transports is highly significant for those who would build a shelter, or buy it, on the basis of extant knowledge.

Take, for example, the Minuteman missile on which the Department of Defense intends to place as much reliance for deterrence between now and 1967, as it does on fallout shelter for insurance of survival of the people. It has but one motor, and no "fail-safe" provisions. It is built to what engineers term a "go-no-go" concept. The 30 million Americans who use guns yearly know that a solid-propellant such as in a rifle cartridge, shotgun shell – or the Minuteman – can misfire. In contrast, the B-52 jet bomber or the DC-8 or 707 jet transport are, like propeller airliners before them, multi-engined. If something goes wrong with one or even two engines, they do not blow up on the runway with all aboard incinerated. They still can take off. They are built so that, if a metal fatigue crack develops, it goes so far to a joint and stops there – until detected at a periodic check. But meanwhile the aircraft flies.

Fallout shelters and long-range mis-

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siles, however, are built to the "go-no-go" concept; they are not "fail-safe."

There may be a very good reason why the Soviets have designed rockets of such vast power. It may not be because they cannot make small, light, "sophisticated" thermonuclear missile warheads such as the US has for its Atlas, Titan (most powerful, about 4 to 6 megatons), or the little Minuteman or Polaris. Rather, the great power may enable them to build in some "fail-safe" systems in their motors. This, as the eminent physicist Dr. James Van Allen told the American Rocket Society last October, avoids the leading hazard to successful space and missile flights: "gross engine failure at takeoff."

Imponderables

Significantly for shelters, the reason so many rockets have blown up, is for the most part neither because of deficiency of science nor engineering, but of craftsmanship. And if such is the case with rockets for war and space exploration costing millions, what can the citizen expect of largely untested shelter design engineering and technology involving perhaps $15,000 for a 100-person group shelter, and down to $150 for a "lean-to"?

People cannot get information to other people when: (1) there is no general agreement among authorities; (2) there can be none, because the data that could and should have been obtained, had not been; (3) the conceptual basis precludes the exactitude the people are used to in houses, autos, appliances; (4) there are imponderables that shall never be known, because of the very nature of total nuclear war and fallout it may produce.

Dr. Lauriston S. Taylor, chief of radiation physics at the National Bureau of Standards, told the *US News and World Report* in November: "I think it is an almost-impossible task for the layman" to figure out the philosophy and medical problems involved in radiation. The interviewer, having noted that even scientists appear to disagree on the fundamentals of the subject, asked what the laymen should do, then – quit worrying?

Dr. Taylor answered: "Well, yes. I say that, but then we must be realistic. People don't stop worrying just because you tell them to stop."

Some Effects of Radiation

Little is known about the nature of fallout because this phenomenon, peculiar to a thermonuclear ground-burst, was a surprise effect of the "high-yield" test of an H-bomb on March 1, 1954. The scientists did not expect the heavy, long-range fallout from the blast on Bikini Atoll in mid-Pacific. Natives some 100 miles away on Rongelap were exposed to as much as 175 roentgens before being taken to safety.

Between the first A-bomb explosion and 1958, there had been very few tests of nuclear weapons. There were fewer still of thermonuclear ones. The total testing by Britain and the United States is in the 125 megaton range – little more than twice the power of the superbomb tested by the Soviets at the end of October, and probably no greater in total power than the Soviets could make as a warhead for one of their rocket boosters. The US, having tested no bomb more powerful than 15 megatons, cannot know with any degree of certainty that the formulas valid up to that power, are applicable to 50 and 100 megatons.

The people of Tucson were advised in a detailed study prepared by the College of Engineering and to which we referred earlier, that only a buried shelter would have any value – and it must have "*at least*" a four-foot thick covering of earth, not three feet as federal booklets stated. Also, utterly ignoring the two-week shelter sojourn on which the federal shelter stocking is based, the study said "it seems likely . . . Tucsonians will be in their shelters almost continuously for four weeks and intermittently for many additional weeks."

The Dean of the University of Arizona College of Engineering, Dr. Martin, was very frank about how little we know when, last October, he tried to tell fellow Tucsonians about nuclear attack effects: "Specific rules do not exist to tell us how much radiation people can absorb without major injury when the doses are large, but infrequent." When health officials from the states, the United States Public Health Service, and the Food and Drug Administration met in Washington that same month, the Washington *Evening Star* in reporting their discussions said that "scientists studying men who have been exposed accidentally to heavy radiation have learned it can affect both health and heredity, but facts about low or moderate radiation over long periods are sketchy."

These uncertainties are worth pondering by those thinking of building some sort of fallout shelter. The shelters specified in civil defense pamphlets to date, and certainly the protection levels of the federal fallout shelter, merely attenuate the entry into the shelter of radioactive emissions from fallout, by a certain factor (by 100 times, under the minimum standards for federally surveyed shelter spaces). But no factor is "certain."

The variables are great in the assumed situations and data of those who profess to know what shelter and nuclear war is all about. We referred earlier to the Stanford Research Institute, much involved with civil defense studies, and its 1960 three-plan manual for its staff. In that manual, it credited its building basement shelter with an attenuation factor of 1/250 (reduction of outside radiation strength per hour by 250 times). "If the [San Francisco] Bay Area were attacked," the SRI assumed, "the effective radiation dose might reach a maximum of 25,000 roentgens (R)."

The results literally become sickening. "Were this upper limit of radiation present in our area," SRI continues, "personnel in the basement would receive a total dose of 100 R (per hour)." This, SRI concedes, "is the minimum sickness dosage. . . ."

However, SRI's fallout dose assumptions were based upon a mere five – not 55 – Soviet megaton bomb. But in any case, the 3,000 SRI staff members would be better off than citizens outside the SRI compound or in any federal shelter space meeting only the minimum attenuation factor standard of 1/100.

Those who sicken from doses of from 100 to 250 R will make very nasty neighbors in a crowded shelter, especially the federally-surveyed ones with their tiny space allotment per person. According to the Atomic Energy Com-

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mission's *The Effects of Nuclear Weapons* (the latest – 1957 – edition):

"Exposure of the whole body to a radiation dose in [this] range will result in a certain amount of sickness, but it will probably not prove fatal. . . . There is usually some nausea, vomiting and diarrhea on the first day or so following irradiation." Then there is a latent period up to two weeks or more when the patient can carry on – until he begins again to have diarrhea, bleed at various spots, lose his hair, appetite, and sense of well-being. If no complications set in, in about two months recovery will start.

Shelter First Aid

The space allotted in the federally-surveyed and marked shelters – about that of a phone booth – is insufficient to provide room for casualties to lie down. Yet persons in shock (and there may be many from both nervous and physical causes, especially if the burst is near enough to make objects fly about, and have some slight direct effect with burns as well), suffer from blood being drawn from the brain. They must be laid prostrate with head down and feet higher, according to the *Ship's Medicine Chest and First Aid at Sea* prescribed for shelter first aid.

Children are particularly susceptible to long-delayed radiation damage. "It would be possible that a relatively high incidence of thyroid cancer would occur in those who had been small children at the time," Dr. Charles L. Dunham, Director of the Atomic Energy Commission's Division of Biology and Medicine, told the Holifield Committee in August. "We would expect that the incidence of leukemia in the surviving population would be increased, probably by a factor of several [times] for a few decades, then taper off. . . . A similar increase in bone cancer . . . might appear." Both the thyroid and bone cancer would be attributable, in the Doctor's opinion, to "unavoidable" (in the latter case) and "inadvertent" (in the former) ingestion of food salted with strontium 90 or of radioiodine.

But while children might not show serious radiation effects for decades, the ordinary ills of childhood would pose severe problems. According to Technical Report TR-12 of the OCDM of January, 1960 (*School Shelter: An Approach to Fallout Protection*): "It is to be expected that within a two-week period [that which the Office of Civil Defense cites as an average sojourn in a shelter] approximately five percent of the [young] occupants would require isolation and/or continued bed rest which suggests an infirmary capacity of approximately two percent of the occupancy." There just won't be the space, facilities, or trained persons because even in a special school shelter there will be "little diagnostic or therapeutic care." "Serious cases of physical or mental illness" would appear to be sure goners, merely from lack of care – without any radiation.

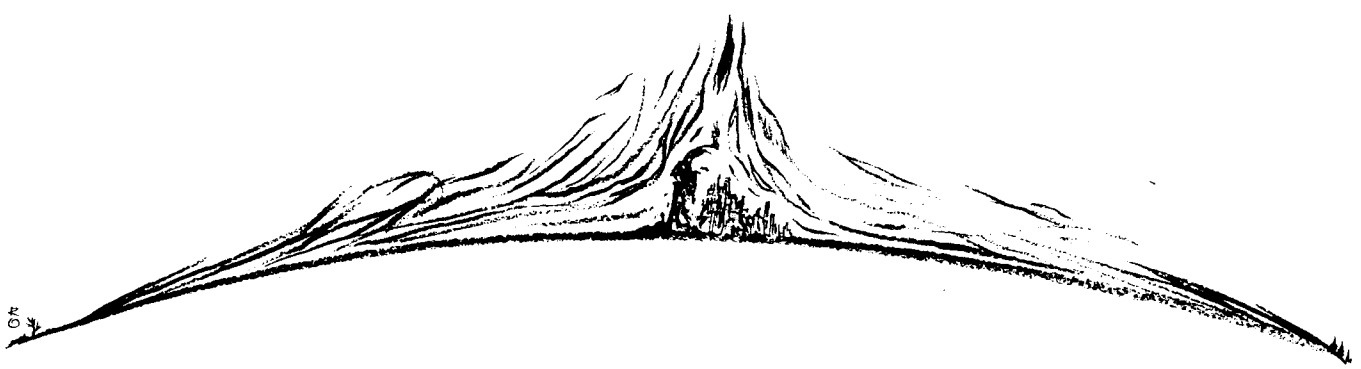
If a person is exposed to radiation, or eats any contaminated food, nothing can be done about the inevitable result. Dr. Dunham told the Holifield Committee: "Treatment for whole body radiation injury is not specific, in spite of much research by the Atomic Energy Commission and the Department of Defense. As much as we need it there is today no satisfactory prophylactic medicine or antidote." The Army has been seeking a pill, but Dr. Taylor told *US News:*

"A committee of the National Academy of Sciences, of which I happen to be chairman, has examined this question from a civil defense point of view. We decided over a year ago that, on the basis of all the evidence we could find, there was no reasonable likelihood of the development of such a pill within the foreseeable future."

Federal civil defense officials have been anything but frank about radiation dangers. For example, *Newsweek* in its November 6, 1961, issue, interviewed Office of Civil Defense officials to present a "'Sensible' Fallout Protection: Q and A on the New CD Plans." Asking about fallout shelter cost, it said it got the answer that a "$100 shelter can give as much – or as little – radiation protection as the more expensive models." That, of course, is pure moonshine. And on November 9, Dr. Willard F. Libby, nuclear physicist at the University of California at Los Angeles, and former member of the Atomic Energy Commission, flatly contradicted the statement that price is no criterion of protection. He wrote: "The better, the sturdier and better supplied the shelter is, the more protection there is against fallout, and even blast effects." Specifically, "My own simple shelter in which I use sleeping bags, increases fallout protection 100 fold. But a $5,000 shelter could give 10,000-fold protection."

Almost typical of what befell those who dared pontificate on shelter during the great shelter debate, was what befell Dr. Libby. The first in his nationally syndicated series of newspaper articles, flamboyantly entitled "You Can Survive Atomic Attack," began: "For $30, I built a fallout shelter in my backyard. . . . This poor man's shelter is just one example of many practical things you can do – and especially KNOW ABOUT – for survival insurance if all efforts to keep peace fail."

Then came the Bel-Air, California brushfire, such as a Soviet superbomb could easily have set. The Associated Press reported: "The fire was a costly



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test for a $30 fallout shelter, but its builder, one of the world's top experts on survival, is more sold than ever on it." AP quoted Dr. Libby as saying, after the fire burned the railroad ties supporting the roof: "This shelter was designed against fallout – a radioactive powder – not fire."

Dr. Van Allen (discoverer of the Van Allen belt of radioactive material girdling the globe in space) and seven fellow University of Iowa physicists promptly protested publicly. Soon they were joined by members of a Pittsburgh Study Group for Nuclear Information. Both objected to Libby's disregard of the incendiary effects of Soviet superbombs that could set everything afire for a radius of from 50 to 70 miles from point of burst, burning humans fatally at that distance.

Dr. Libby nevertheless remained undaunted. In the tenth article of his series, he went on to recommend what steps might be taken by city dwellers, to capitalize on whatever inherent protection apartment and office buildings, or private homes, might have. He suggested "improvised shelters with 'walls' of books." Obviously such a book-walled shelter in any of the rooms of the Libby home would have proved as useless (though more expensive) as one supported by railroad ties.

The Postattack Situation

Fallout Protection, What To Know and Do About Nuclear Attack conceded that an enemy might explode nuclear weapons at higher altitudes. There would then be no fallout to shelter against; but there would be fire. Air would be sucked in from unknown distances to fill the vacuum. Unless tightly sealed off and with their own oxygen supply, people in shelters might have their lungs collapsed from the suction of the air, or suffocate from carbon monoxide from homes and buildings burning above them. But having noted this, the booklet went on to other things. Against this admitted contingency, the citizen is not to be protected in space provided under the National Shelter Survey program.

Yet starting back in 1959, there were valiant attempts to focus official and public attention on what wholesale fire might do. John N. Wolfe, chief of environmental sciences in the AEC's Division of Biology and Medicine, testified before a Special Subcommittee of the Joint Atomic Energy Committee that: "Fire . . . [if the attack was set for the generally dry season of October] would spread over enormous areas of dry Western coniferous forests and grasslands." There would be, Dr. Wolfe remarked: "concomitant destruction of natural living resources and their habitats." He continued: "It is most likely, in my opinion, that these fires would go unchecked until quenched by winter snows, spreading over hundreds of thousands of square miles." He noted what Dr. Libby seems to have ignored: "The immediate physical effects [of fire] could be particularly catastrophic in such areas as the Los Angeles watershed, where the city is surrounded by vegetation susceptible to the inroads of fire."

(Again, it is important to know that Dr. Wolfe was talking before the Soviet 50-100 megaton superbomb era; and that he assumed only a 3,000 megaton attack, directed at 78 cities; and using merely ten 28-megaton bombs; 18 of 8 MT; 28 of 3 MT; 7 of 2 MT; and 8 as small as one MT – as compared to 100 – MT.)

But his description of such fires only accounted for what would happen in a postattack situation out West. "In the eastern United States," Dr. Wolfe continued, "the dry oak and pine forests of the Blue Ridge and Appalachians from New England to Virginia, adjacent to multiple detonations, would undergo a like fate, as well as the one on the southern Atlantic and Gulf Coastal plains."

As to the Midwest farm region: "In the agricultural land of the Mississippi Valley, with crops harvested, fire is likely to be more local, less severe, but widespread."

But these horrors only served as an introduction to the development of the postattack situation set forth by Dr. Wolfe: "With the coming of spring thaws, especially in the mountains, meltwater from the mountain glaciers and snowfields would erode the denuded slopes, flood the valleys, in time rendering them uninhabitable and unexploitable for decades or longer." Nor were spring freshets and floods the only erosion factors to be reckoned with in the postattack world: "Removal of turf by fire and erosion on plains and prairie would result in the uncheckable erosion by wind, with subsequent expansion of present 'dust bowls' and the creation of new ones of wide extent. Along with fire, flood, and erosion . . . would come intensification of disease – plant and animal, including man." Disease as a concomitant of war casualties would be back where it was before the Russo-Japanese War of 1904-1905 and World War I, when more soldiers died of disease than of wounds. In the Thirty Years War perhaps a third of Europe died of disease in ravaged areas. In the wake of a general nuclear war, epidemics, now known only to Asia and Africa, would again appear in the US.

More than two years after Dr. Wolfe spoke, Dr. Merrill M. Cross, chairman of the American Academy of General Practice National Defense Committee conceded that "physicians have generally been reluctant to get involved in civil defense." However, he noted that "a nuclear barrage will kill half of our doctors and destroy more than half of our hospitals."

A Harder Life

There would be all the injured, the burned – and the irradiated. On top of this staggering medical load there would be the disease and probable epidemics about which Dr. Wolfe worried. Moreover, with lack of doctors, proper foods and medicine (vaccines as well as anti-biotics), many diseases now fully conquered, again would take hold, especially children's diseases.

Other forms of life besides viruses and bacteria would make life harder and harder. As Dr. Wolfe said: "In the less irradiated areas, populations of deleterious animals, especially insects, would move in – a further detriment to food production contributing to its unavailability to surviving people."

But assuming radioactive fallout, not

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fire, was the principal danger, there would also be a serious postattack problem. "Those islands relatively free of radioactivity in the early stages," Dr. Wolfe said, "would be increasingly contaminated by redistribution of radioactive materials by wind, water, biotic migration (animals, insects, and so on), and precipitation (rain, snow)." He explained: "Animals able to move into 'clean' areas will be contaminated by survivors from adjacent areas, and probably both the wild and domesticated animals will be unfit for human food." Masterless cats and dogs will be on the prowl. They will become literally lethal to any who fondle them or give them shelter or food.

"I visualize," said Dr. Wolfe, at this stage of the postattack situation "those people unsheltered in heavy fallout areas *after three months* to be dead, dying, sick, or helpless; those sheltered, if they can psychologically withstand confinement for the period, will emerge to a strange landscape." (Note that Dr. Wolfe is saying that a mere 3,000 megaton attack fallout result would require shelter sojourn for *three months*, not the two weeks mentioned as average in the Department of Defense booklet, or, the four weeks specified in the Arizona manual.)

"The sun will shine through a dust-laden atmosphere," Dr. Wolfe foresaw. "The landscape in mid-January would be snow-covered or blanketed by fire." (Fire still raging on January 17, following an October 17 attack!)

"At higher latitudes blizzards and subzero temperatures would add death and discomfort. Both food and shelter would be inadequate and production incapacitated."

But this is not the end.

"Come then the spring floods and soon after, adding immeasurably to the disrupted pattern of human existence [will come storms] such as hurricanes and tornadoes, for which there is no defense, and after which there will be little aid. . . ."

Dr. Wolfe concluded cautiously, "The role of North American man in this long-term view of environment – his nationality, genetic constitution, psychological makeup, and creative potential three, ten or 100 generations later – I leave for others to predict."

What then becomes of that sheltered survivor? Speaking before the United States Civil Defense Council in Los Angeles on October 19, Mr. Pittman wondered too: "Who will guide people out of their shelters; who will know how to make radiation meters serve as the eyes of the blind emerging into the dying but still virulent radiation, deadly when blown against the backyard fence and negligible in the lee of a house; who will give the leadership to a hundred people huddled in the safe center of an office building so they can know when to uncramp themselves, move into adjoining rooms that might or might not be safe; who will know whether a short trip from shelter carries radioactive particles back to those who dare not leave?"

Training for Civil Defense

Mr. Pittman was trying to make a point many people seem incapable of figuring out for themselves. He stressed that: *"Shelters are only the beginning of the problem*, a large and formidable first huddle. . . . *Civil defense, to be real, requires organization and some training of people."*

The key to several questions puzzling the public is to be found in what Dr. Wolfe and Mr. Pittman revealed:

1. The main problem in civil defense isn't provision of shelter, but recovery in the postattack phase, including recovery of people sheltered.

2. The postattack problem cannot begin to be dealt with unless there is massive nationwide organization and training, affecting every community and each individual.

How is this to be done? Secretary McNamara's booklet says "Your state and local governments have the operating responsibility for civil defense. . . . The responsibility for organizing community civil defense protection falls on the states, and through them, on local government units."

Well then, perhaps the US should emulate Canada, which in 1961 turned over civil defense to the National Guard. Canada's government and defense authorities came to the conclusion that their National Guard equivalent, called the Territorials, could not be readied in time for military service in modern major war and couldn't be used for minor wars. Hence, those wanting to serve could train for civil defense, especially for service in postattack situations.

According to advices from the *Montreal Star* sent to the *Washington Post* in October, "The [Canadian] government has decided to increase the militia, now at a strength of 40,000 men, by 100,000 more young men. They will be given a six-week crash course in search and rescue work, and then will form a nucleus of a national organization for carrying out whatever program may be put into force at any given period." The editor of the *Montreal Star* noted, "To have even a reasonable search and rescue operation, more than 100,000 men will be needed. Canada's population of over 18 million spreads over more than 4,000 miles from the Atlantic to the Pacific."

Some years earlier, the Netherlands and Denmark had done likewise with their draft-national service. Proportions of annual callups were given civil defense training only.

However, according to federal policy after the Department of Defense took over civil defense on July 20, the federal government is not going to treat civil as it does military defense. It is not going to use its delegated powers regarding the maintenance of a "well-trained militia," not going to use the draft acts to see that civil defense training is given that comes up to federal standards; not going to assure that equipment is uniform under federal standards.

"So I am saying this," said Mr. Pittman, "America being what it is, civil defense must be *community* oriented and it must be *personal* initiative oriented. . . . If the community is dead to the problem, there is a great waste in pointless supporting activity."

But how could high officials in Washington, themselves "dead to the problem" during the 10 years before they took office, suddenly sit as judges on people who remained indifferent still?

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Protection Against What?

During the last two months of 1961 there was no assurance that the "highest levels" would resolve their patent and very public differences over whether cities or "retaliatory" bases would be the prime priority Soviet targets; or whether shelter was only "insurance" against accidental attack or would "deter" a more rational attack. If these official and semi-official wranglings accomplished anything, it was to deter individuals from responding to the President's call.

But there was another "deterrent" to shelter construction; namely, the debate over whether the program should provide protection against radioactive fallout only, or whether against chemical and biological weaponry as well.

Secretary McNamara's presentation to Congress early in August had made crystal clear that shelter so far as the federal government was concerned was against thermonuclear attack only; moreover, that the program aimed at protecting only against what might be termed immediate fallout of radioactive debris from a surface bomb blast.

The Secretary's presentation nowhere took up the problem of coping with chemical and biological weapons subsequent to taking shelter, in the postattack period, or indeed under any conditions, and the omission came under immediate attack from what might be termed the chemical-biological scientific, industrial and military interests.

The latter were vested in the Army, which in the eight years of the Eisenhower Administration had slid from the top of the military heap, in terms of its share of the military budget, to the bottom. Within the Army the Chemical Corps was even regarded as faintly ridiculous, sometimes being termed the "Comical Corps." However, there was nothing comical about the way in which, in 1955, under its then Chief, Maj. Gen. William M. Creasy, the Chemical Corps launched a campaign to put its old line of chemical weapons (now with very modern additions), plus a new line of biological weapons and perhaps even bacteriological weapons, back into the limelight as major weapons.

Few may recall that as late as the Munich crisis of 1938, London still feared gas more than the combination of high explosive and incendiary bombs. The carrying of civil defense gas masks became almost as much of a symbol for Londoners of the Munich era as Chamberlain's umbrella. However, gas was not used in World War II; nor, let it be noted, have nuclear weapons been used in any of the wars since their double debut on Hiroshima and Nagasaki.

The Chemical and Biological "Gap"

About the time, in 1955, that the present Deputy Secretary of Defense, Roswell L. Gilpatric, as the Air Force Deputy Secretary was pointing up a "gap" between US intercontinental jet bomber progress and programs and those of the Soviets, the Army Chemical Corps was pointing out a more significant "gap" (in their opinion) in chemical and biological weapons systems. The Soviets were far ahead, of course. By early 1961, when the first Kennedy Administration defense budget was under Congressional review, the existence of this particular weapons "gap" had evidently been pretty well sold to skeptical as well as powerful members of Congress. In answer to a question from a knowing Congressman, Maj. Gen. Marshall Stubbs, as Chief Chemical Officer, replied:

"All available information points with certainty to the fact that the Sino-Soviet bloc is ahead of the United States and our allies in both offensive and defensive chemical and biological research and development, and have a stronger capability to wage a chemical and biological attack."

From the start of their campaign in 1955, the proponents of chemical-biological warfare did not hesitate to compete outright with nuclear weapons as a prime means of strategic attack. Similarly, the Soviet capability to use such weapons was presented as a

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greater threat than nuclear attack, thus affecting every aspect of military and civil defense.

A basic position paper, as good in the great civil defense fallout shelter debate as it was when delivered before the Texas Chemical Council at Houston in 1955, was a speech by General Creasy. After some preliminary remarks ("under today's concept of warfare, the 'home-front' is just as important as the battlefront"), the General got down to civil defense brass tacks:

"The time has come for a realistic appraisal of just what an attack upon our 'homefront' could be like. There are few scientists outside of the military establishment, and still fewer laymen, who comprehend the dangers to this country from such an attack and the possible means for countering the actions of the enemy." Nevertheless, "The situation concerns every man, woman, and child in the United States."

Poor Elk Grove: still another dire threat to each and every villager.

General Creasy said flatly, "All warfare is antipersonnel in nature, no matter how it is accomplished, for without manpower, machines and weapons become inoperable. . . . In any attack upon the American 'homefront' we will be the targets." "In warfare," he explained, "casualties among personnel can be caused by (1) Mechanical injury, (2) Heat, (3) Poisoning, (4) Sickness, (5) Radioactivity, (6) Starvation, and (7) Mental derangement.

As the General saw it, the use of nuclear weapons didn't make sense economically for an aggressor, because such weapons "cause physical destruction not only to the human element, but also to the buildings and machines those humans operate." In contrast: "Poisoning, sickness, radioactivity, starvation, and mental derangement can cause death or dehabilitation [a nice term] among humans, but do not destroy material things."

"Debilitate Instead of Kill"

He then came to the point: "From our viewpoint as the potential targets, [the enemy] probably would debilitate instead of kill, for the machines would need people to operate them at the conclusion of hostilities. If he can keep the human element away from the machines through illness and other debilitating means during combat, he will have achieved his purpose of neutralizing our machinery of war and industry." Therefore, the General summed up: "On this basis any far-sighted person would be forced to conclude that the threat from chemical and biological weapons is just as great as is the threat from nuclear weapons."

By 1960, the chemical-biological weapons proponents had "sold" their case to the Assistant Secretary of Defense for Research and Engineering, Dr. H. F. York (whom Secretary McNamara replaced). In 1960 Dr. York confirmed for the Congress that this weaponry, "if we push it" could have an influence in warfare "comparable with that of atomic energy." He then ventured: "If you look at cost effectiveness for producing a casualty, whether lethal or temporarily incapacitating, [the chemical-biological] weapons are, very roughly speaking, comparable with nuclear weapons." However, "it is my feeling that if a comparable effort were put on this as has been put on nuclear weapons, that comparable results, or even greater results, would be achieved."

Dr. York waxed enthusiastic about the future he foresaw for such weaponry, despite the very modest work done to date by the Army: "Down the road I can see the possibility that [these weapons] might be 10 or 100 times cheaper but . . . in the same class potentially as nuclear weapons, except that with nuclear weapons . . . you cannot get nonlethal effects, but only lethal."

By the time Dr. York testified, the Army had demonstrated to newsmen new weaponry which made cats afraid of mice; which temporarily took the will to fight and for action out of people. The Army made out that it was far along the road to making the warring of populations of hundreds of millions against other hundreds of millions sort of a long holiday from the humdrum tasks of the ordinary workweek. But the cautionary note always was sounded that the Soviets were ahead; that a proper US research and development program had hardly been even programmed until 1960.

The American Chemical Society was requested in 1957 by the Federal Civil Defense Administration, to report on ways in which it could assist civil defense. Not surprisingly, the ACS special committee formed to make the report found that national defense planning had relegated biological and chemical warfare to a dangerously minor role: "Complete unpreparedness resulting from ignorance and indifference only invites the enemy to employ such weapons."

In 1959 General Creasy, then retired from the Army, launched a violent attack upon the Eisenhower 1958 fallout shelter program: "If we go around gearing up our civil defense with underground shelters to protect us against the atomic bomb, we may find it will be instead a guided missile with a chemical or biological warhead." The whole concept of fallout shelters just invites such weapons, he warned. "As you go underground, you must have ventilation." As to this point the General agreed fully with Secretary McNamara's later concern with improved ventilation, as a prime means of increasing the capacity of shelter spaces in public buildings. However, there was a vital point of difference; for, according to the Creasy theory of war, "as you put in ventilation fans, you simply guarantee

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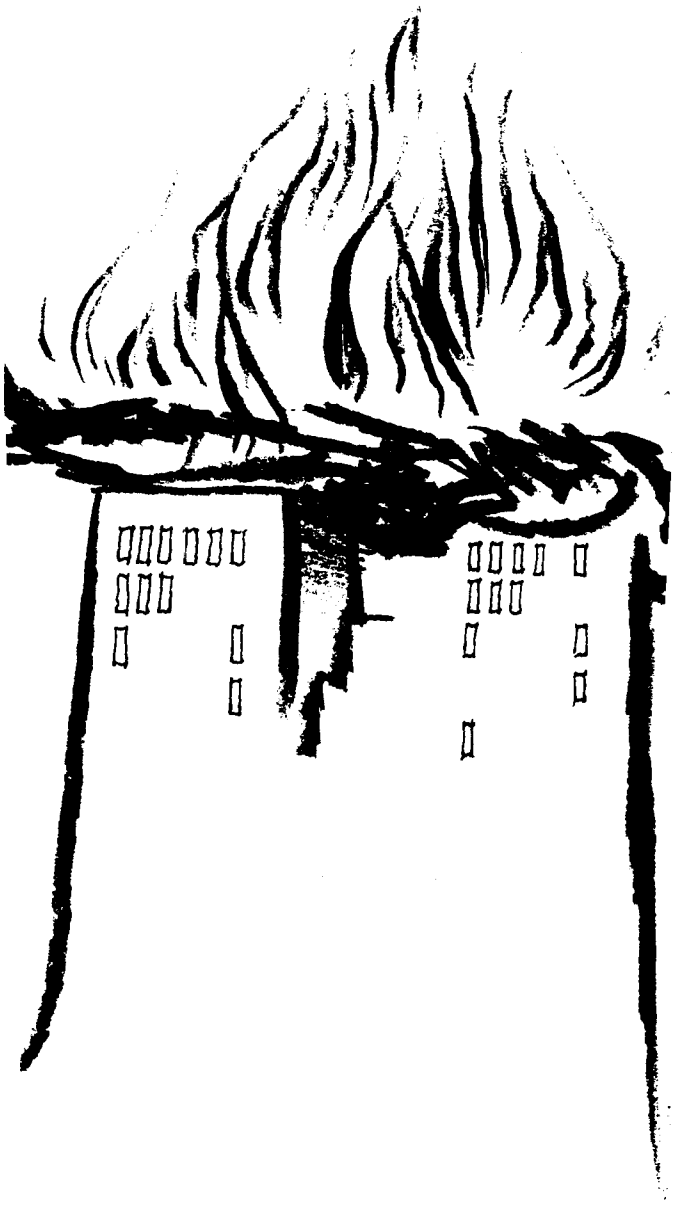
that they will draw in the sickness or death that the chemical warhead carries." That was a further complication that did not come up for discussion in Elk Grove Village.

To avoid such dire dangers, the CW-BW interests had seen to it that the National Policy on Shelters announced for the President by the Director of the new Office of Civil Defense Mobilization on May 7, 1958, made "protection against chemical and bacteriological warfare a definite part of our overall shelter planning." The OCDM was prepared to assist state and local governments in the construction of emergency operating centers by contributing 50 percent of the cost of the structure, so long as the requisite BW and CW protection were provided, along with security against delayed radioactive fallout. The provision of CW and BW protection likewise was planned for headquarters relocation sites of all federal departments and agencies. And when the Eisenhower Administration issued a directive requiring all such federal organizations to budget for fallout shelter in new buildings, additional provision for CW and BW filters was made mandatory.



In all this planning, the private, family fallout shelter was not forgotten, although it appeared that the cost of the cheapest fallout shelter would thereby be at least doubled. For protection against all these possible hazards, an air-tight door would have to be installed in any basement, open-door-type family shelter. The roof had to be well-sealed. The walls and masonry work generally had to be made much more non-filterable by chemical agents, germ viruses, and whatever fiendish forms of microbiologicals scientists might create in their laboratories. There would have to be a hand blower-ventilator with a small collective protector,

Moreover, as in London at the time of Munich, gas masks would be very much in order. A person might be caught far from shelter during an attack by missiles with chemical and biological warheads. He would need a mask while seeking shelter, or in case he was required to move from one shelter to another.

Official But Forgotten

When Mr. Frank Ellis took over as President Kennedy's head of the foredoomed Office of Civil Defense and Mobilization, he also took over the Office's 1958 acceptance of CW-BW protection. This policy was passed on to the Department of Defense and Secretary McNamara in the 1961 Executive Order transferring authority on civil defense to the Pentagon. The Order stated that civil defense functions "shall include but not be limited to the development and execution of (1) a fallout shelter program; (2) a chemical, biological, and radiological warfare defense program. . . ." It has been ignored. Secretary McNamara's Deputy Assistant Secretary of Civil Defense, Paul S. Visher, was singularly confident that the state of the art of such weaponry does not merit provisions to protect against it, whatever the Executive order may say.

Again, because it was being ignored did not mean all the "highest levels" were agreed it should be. Sidney G. Winter of the RAND Corporation was by no means as sure about CW-BW dangers as is Mr. Visher. When Mr. Winter was called as an expert witness before Congress last August, he said: "I should mention that throughout my talk . . . I am neglecting some important possibilities in the range of military postures, particularly the possibility that bacteriological and chemical weapons might play a significant role." Mr. Winter was very frank: "The reason is simply stated: ignorance." But he essayed to speak for others, too: "I believe that this ignorance is widely shared, and I doubt that the

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possible effects of bacteriological and chemical weapons are known with sufficient accuracy to permit an evaluation of how important their effects might be on the recovery problem."

No such "ignorance" restrained the American Chemical Society which in November, 1961, announced plans to convert its basement garage in Washington, D. C. into a huge BW-CW-fallout proof shelter for 700 people. The BW-CW "garage" would not only protect against such exotic weaponry as nerve gases and germs, but also would cope with the smoke likely to result from the wholesale fires throughout Washington that would most likely be caused by an airburst superbomb overhead. This one shelter got so much publicity after the announcement that the Society's civil defense man complained two weeks later: "Ever since then I've done practically nothing but answer questions about the shelter." One man wrote from New York to say he was afraid he might get caught in the midst of an attack during a Washington trip, and wanted to reserve a space in the Society's "safe" basement.

Maj. Gen. Stubbs, who is now Chief of the Army Chemical Corps, in September fired a full salvo at those who downgraded CW-BW weapons in preference to thermonuclear ones. He showed none of the "far-in-the-future" attitude toward CW-BW of Mr. Visher, or the "don't really know" approach of Mr. Winter. CW and BW weapons, the General flatly declared, can now be used strategically to "cause casualties in an area the width of a continent." Delivered as missile warheads or by other means, they can penetrate even the deepest atomic blast shelters, he said. He recommended that the President take a good look at this line of neglected weaponry from other than the viewpoint of its dangers to civil defense. The range of effects possible, the General pointed out, are just what the President needs to fulfill his goal of a wider choice of military response to aggression than "humiliation or all-out nuclear action."

Even if only a small part of what the CW-BW interests were proclaiming got through to Elk Grove Village, it would be no wonder if families hesitated to build shelters that might protect them only against fallout, as the available federal booklets recommended.

Within the President's Party

The doubts and debates that permeated the "highest levels" were shared by outstanding leaders of the President's own Party. Chairman Holifield attacked the do-it-yourself aspect of the shelter program on two basic counts. First, because people just wouldn't act on their own. "I will state unequivocally," he said, "that you are not going to get a voluntary building of civil defense structures in America approaching one percent of the need." Second, because failure to provide a federal program of shelter for all citizens was an abdication of the duty of the federal government to defend the citizens in time of war.

A Columbia Broadcasting System hour-long show on civil defense on November 9, 1961, gave millions throughout the nation an opportunity to hear and see for themselves the sort of wrangling that had been going on in the halls of the Congress since July. On this show, as in the Congress, the Administration's own appointees were pitted against prominent members of the Administration's Congressional majority.

Replying to the question raised by CBS reporter Howard K. Smith as to who was to do what about what, Secretary McNamara said: "Certainly the federal government, the state, and local governments all have parts to play, but most importantly, it's the responsibility of each individual to prepare himself and his family for that [thermonuclear] strike. . . ."

It's in the Constitution

Almost immediately, Chairman Holifield jumped in: "Under our Constitution, the federal government is responsible for the protection of the lives and property of the people against enemy attack. That's in our Constitution. That's why we have a federal Army, Navy and Air Force."

Holifield was very explicit as to the responsibility for such defense: "The American people," he stressed, "are not, individually, going to be able to tackle this any more than they can tackle modern war as an individual, or as a family, or as a city, or as a state. . . . This is a challenge for survival to the nation. The response has to be a national response, and the only way we can do that is to have the federal government take the responsibility for an integrated and coordinated method of shelters and other survival."

And this, Mr. Holifield noted, meant federal money: "It means funding it out of the general tax fund."

Since CBS had introduced Mr. Holifield with the title of his new post, Chairman of the powerful Joint Senate-House Atomic Energy Committee, and Mr. Holifield himself spoke of the hearings on civil defense he had been holding over the span of six years, both in the Joint Committee and in his own Military Operations Subcommittee, the Elk Grove Villagers watching this fracas could conclude that Mr. Holifield might well know what he was talking about.

The *coup de grace* was delivered by Howard K. Smith who cited a letter to *Newsweek:* "The last command given in a battle to a defeated army is, 'every man for himself'. We are issuing that command first."

As the returns came in on opinion from states, cities

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and towns, the President's party lined up more with Mr. Holifield's view, than with that of the President and Mr. McNamara. Mrs. Eleanor Roosevelt, who might be termed the dowager leader of the liberal persuasion of the Democratic Party, took occasional but very telling potshots at the Administration's program. In San Francisco to address an Israeli bond rally, she found herself staying at the Fairmont Hotel where Governor Brown of California was meeting with the civil defense leaders of Arizona, Nevada, and Utah to hear Deputy Assistant Secretary of Defense Visher tell them about President Kennedy's program. Mrs. Roosevelt could not resist telling the press that "people are going haywire" about shelters. She called state shelter programs such as Governor Rockefeller was pushing through in her home state of New York "perfect nonsense. . . . The problem is one for the government and not an individual."

The Senators Speak Up

In mid-November Senator Humphrey lined up with Mr. Holifield: "If fallout shelters are needed," he said, "they should be erected through public programs and not left to the individual howeowner. . . . Fallout shelters should be considered within the context of our nation's overall defenses and security programs." Having only recently returned from a six-week tour of Europe, Africa, and the Near East, the Senator had been away from America during much of the shelter hysteria. He found himself impatient "with all the excitement in the United States about fallout shelters."

As for the Democratic Majority Leader, Senator Mansfield, he "would certainly not wish to discourage sober efforts in the field of civil defense by communities or individuals." Not wishing to discourage "sober efforts," he nevertheless felt it is "essential that we guard against stimulating hysteria. . . . We must avoid developing a national obsession with burrowing in the ground." The Senator ended up by implying strongly that he was opposed to any civil defense at all. Such "burrowing" might "exclude what may be more fruitful ways of dealing with international difficulties." Just how much his initial "wish" had been worth was revealed by his peroration: "A cover of earth overhead may preserve the strain of human life but it will scarcely preserve a way of life. . . . We owe coming generations a richer heritage than a landscape of fallout shelters."

Sen. A. Willis Robertson, Democrat of Virginia, and the Acting Chairman of the Senate Defense Appropriations Subcommittee before whom Secretary McNamara had appeared to get the funds approved for the President's program, wrote the Secretary early in November. He wanted to warn that he did not believe that the Congress was yet in a position to make a firm decision on federal aid for fallout shelters, although the Congress was due to begin consideration of the next year's federal budget in January, 1962.

Associated Press dispatches quoted Robertson as advising the Secretary that the Senator believed "we should not provide fallout shelters just in federal buildings and primarily for the protection of federal workers." (The Senator evidently was referring to a portion of the shelter program funding $17.5 million for an estimated 930,000 spaces in existing and new federal office buildings, court houses and the like in various cities other than Washington, D. C., itself.) Agreeing that tax concessions should be considered for industries to fit out fallout shelters for their workers, Senator Robertson also was somewhat for a federal program of aid to states for school fallout shelters. The only thing he was sure about was federal aid for family fallout shelters. "*Certainly* the federal government *cannot* provide shelters for private homes," he wrote.

It was all too typical of civil defense leadership under past Administrations, and under the Kennedy Administration, too, that a couple of weeks after Senator Mansfield had delivered himself in Richmond, Virginia of his civil defense views and Senator Robertson of that state had voiced his, the views of both should be counterattacked by a ranking federal civil defense official. Senator Mansfield had been against individual burrowing for moral and political reasons; Senator Robertson had been tending to favor federal aid to states, industries, local schools. But William D. Patton, chief of the Federal Office of Emergency Planning in Region Two, described the Region's policies to the conference of the Virginia Civil Defense Association by saying flatly that the real job of survival and recovery should be done by the community. Outgoing Association President L. J. Stocker of Washington, D. C.'s suburb of Arlington, went further:

"It's time to stop asking what the federal government can do to protect us," he declaimed. Instead, "Ask what we can do in support of our own civil defense program." It was a very good question, to which there was no answer.

Rockefeller and New York

No answer except in New York state, where the outstanding champion of shelters for years has been Governor Nelson Rockefeller. He had fitted out a fallout shelter in his New York City residence on Fifth Avenue. As Chairman of the Civil Defense Committee of the Governors Conference, he had met frequently with the President since his inauguration to stoke the fires for civil defense, federal and state. On November

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9 he rammed through the New York state legislature a bill appropriating $100 million for shelters for schools, colleges, and state institutions, within six hours of opening the special session which acted on the bill.

The *New York Times* Albany correspondent reported, however, that the apparently decisive votes (44-13 in the Senate and 93-51 in the Assembly) "did not reflect the reluctance to support the plan that was evident in both parties." According to the *Times*, "In the two houses, only one Republican, other than the floor leaders, spoke in support of the shelter legislation. . . . The others sat silently as the Democrats who finally voted for the measure, attacked. . . ." The *Times* reported that the text of the bill had not been made available until the afternoon before the day the vote was pressed. Many members had no opportunity to finish reading the bill's 38 legal-sized mimeographed pages before having to vote.

Democratic and Pedagogic Critics

The views some Democrats voiced on the floors of the state Senate and Assembly were vitriolic. Assemblyman Mark Lane, of Manhattan, charged that advocacy of fallout shelters was a "cruel hoax" on New York state residents. This, he said, was because such shelters are useless in target areas, of which fourteen are considered to be in New York state. Where the Assemblyman had got his targeting information was somewhat of a mystery.

Under the New York bill, educational institutions can apply for a maximum of $25 in state funds for each shelter space to be created. But this variety of "aid to education" itself generated new confusion.

Headlines in the *New York Times* for December 13 summarized the reaction: EDUCATORS FACING SHELTER PROBLEM – *Build or Not, Even With State Aid, Is Question.* The *Times* reported that although schools and colleges in the state were scheduled to receive forms in a few days on which to apply for state fallout shelter funds, "education officials have indicated that they must first find answers to a bewildering assortment of financial, practical, moral, and philosophical questions before they can answer the questions on the forms."

Among the practical problems the educators faced was that New York City's building engineers pointed out that underground areas in many buildings were unsuitable for occupancy for any length of time, particularly because of ventilation problems. While civil defense officials claimed that shelter areas had been found and equipped in the State Capitol in Albany at a cost of about $35 for each occupant, the building engineers considered that "covering" the kind of space needed in schools would be a much more costly affair, so that the Rockefeller subsidy of $25 per space would still leave local governments and institutions controlling the buildings stuck for a considerable amount per person: "Estimates of the cost of an underground structure where there are no unfavorable site conditions (such as the high water table at Elk Grove Village) run as high as $300 per occupant." Despite being in direct line of command under Governor Rockefeller, Commissioner of State Education James E. Allen, Jr. took "a firm stand against the diversion into shelters [of] funds needed for educational programs," the *Times* also reported.

Dr. Joseph Manch, Superintendent of Schools in Buffalo, said: "We just don't have the money to provide 100 percent coverage. We have so many building needs, just to provide the necessary classrooms as a result of increased enrollment, we're not sure we would have the money to build shelters even on the basis recommended by the Legislature."

The vast metropolis of New York City, the *Times* reported had no plans. Neither did Rochester nor the state capital itself.

Mayor Wagner of New York City spoke out against any family fallout shelter. The President of New York City's Manhattan Borough, Edward R. Dudley, said back in October that it was morally disturbing to see one group of people building fallout shelters, while another lacked "adequate living shelters." And across the nation, San Francisco's mayor reportedly planned to sit at his desk when the bomb comes. He "shows no enthusiasm for shelter stuff," the *San Francisco Chronicle* stated.

The Nation's Capital

If New York seemed laggard, the nation's capital was not far behind. George D. Rodericks, Director of Civil Defense for the District, had advised all Washingtonians on November 6, 1961, to start looking "now," on their own, for fallout shelter space. His advice was carried in the Washington *Evening Star* under the headline: *Civil Defense Advice:* Take Food To Work: Locate Own Shelter. "Until a public fallout shelter system is available," Mr. Rodericks said, "people would be well-advised to check possible shelter spaces in the buildings where they work, or consult the building engineer."

Mr. Rodericks acknowledged that the numerous extant marked bomb shelters in Washington had been selected four or five years before, primarily to provide protection against the blast of the Model T bombs of the atomic bomb era. "No one knows whether these shelters would provide effective protection against fallout," he acknowledged. Anyway they were not stocked

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with food, water or other minimal supplies.

Mr. Rodericks based his recommendations on the fact that "originally we were working on the assumption that we would have four to six hours warning of an enemy attack." Now that the threat was posed by missiles as well as bombers, "warning time has been greatly reduced." He observed that notice of enemy attack might be as short as 15 minutes. Therefore, those working downtown in Washington would have to find fallout shelter quickly.

Those unable to get home from the office (assuming home was a shelter) should stock up. "You can escape fatal radiation and still die of hunger or thirst if you don't have supplies," he warned. The civil defense director said he keeps his own canned food and other supplies available at his office.

The next day the *Evening Star* published a photo of Mr. Rodericks with a display of food stocks he recommended for office workers. From the amount and variety of canned and packaged foods identifiable, the following of Mr. Roderick's advice by the city's million residents might make a sizable dent in the nation's vast stocks of agricultural surpluses.

Beneath the photo, there was a story in which Mr. Rodericks expatiated on his shelter self-seeking, self-feeding policy. He explained that it was a stop-gap measure, since the federal marking and stocking of shelters in Washington, he estimated, would not even start on a broad scale until the summer of 1962. Meanwhile, he noted (again in opposition to Mr. Yarmolinsky) Washington residents were "very vulnerable."

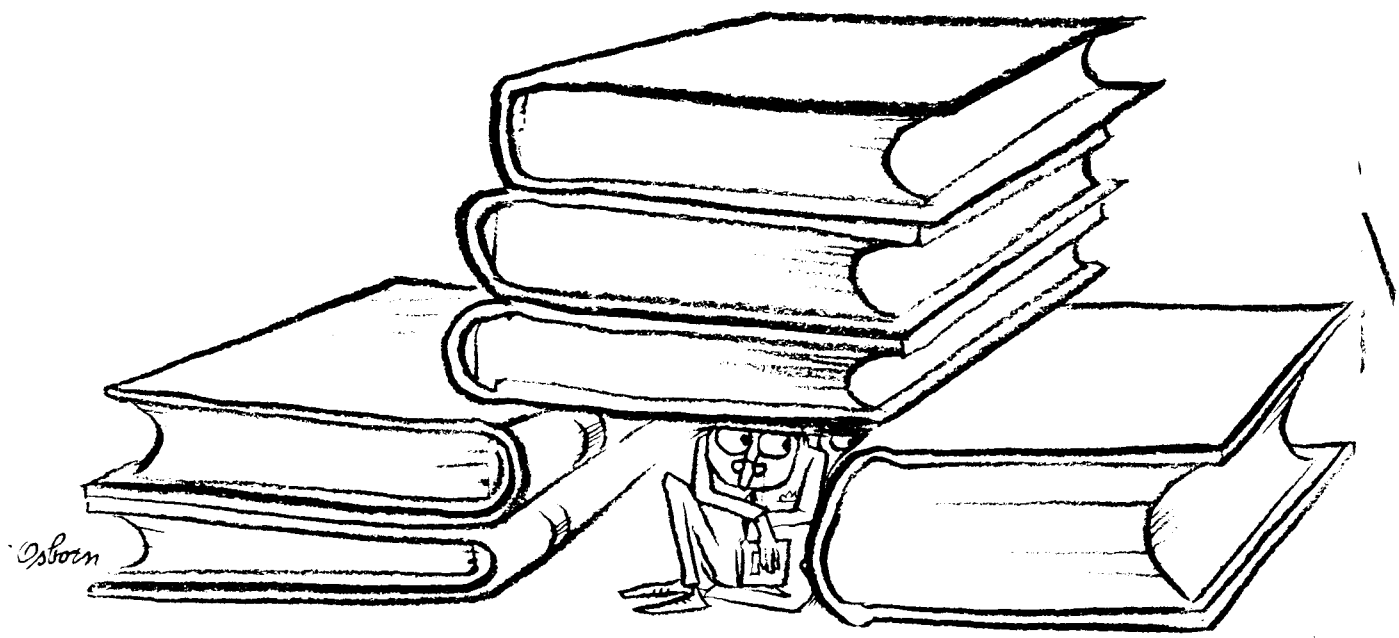
Boxed within this *Evening Star* interview were short interviews with the DC Board of Commissioners. Engineer Commissioner Gen. Frank J. Clark, when asked if he intended to follow Mr. Roderick's suggestion, said: "No." Commissioner John B. Duncan said: "Certainly not at this time." The *Star* reported that Commissioner Walter Tobriner would continue to take his chances in an office barren of canned food and water containers. Mr. Tobriner remarked, "with an almost straight face," that since he has no license to carry firearms, he would be unable to protect a hoard of food and water.

The morning of the day the *Evening Star* carried its second and largest article on Director Rodericks' advice that those downtown should stay put, the *Washington Post* quoted him as saying: "When I see enough shelters in Washington, then I'll agree that telling people to stay put is the best solution."

Despite the minimum warning time of 15 minutes he had cited two days running in the *Star*, he was proposing to the *Post* that the million inhabitants of Washington and the other million in the surrounding suburbs, should somehow manage in those minutes to put many miles of distance between them and town. He did not explain how these millions, once scattered over the countryside, would find fallout shelter and food there.

Director Rodericks then essayed to explain away the patent contradiction. "I in no way meant to imply that people should consider this [his *Star* recommendations] a matter requiring attention of an urgency to cause panic."

A week later the city Office of Civil Defense was at it again. A well-publicized meeting on November 11 of 54 city officials, was opened by Director Rodericks with the following statement: "You get the impression that a lot of things are going on, but not everyone is clear about them." His communications officer, William H. Irvin, followed up by reporting it had taken him 44



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minutes to reach the Commissioners and City Department heads in a test of the city warning system two nights before. (He wanted $60,000 for more radio equipment to cut the time needed for alerting officials to about two minutes.) Mr. Irvin said that, in trying to reach one official, he got a baby sitter instead. On receiving the message she dropped the phone in panic.

Back in early August, the indefatigable Mr. Rodericks had got into hot water when he announced that he was proposing within a week "a radical shift" in defense planning. The *Washington Post* reported the plan's "most striking aspect" was a "proposal for 'strategic evacuation' of perhaps 90 percent of the population days in advance of a possible attack."

Planners of Strategy

Who can blame Mr. Rodericks? He was rising to the President's challenge. He saw his "strategic evacuation system" as a possible tool in the crucial war-or-peace bargaining going on over Berlin between Kennedy and Khrushchev. Appearing on a television program called *City Side*, he said: "Strategic evacuation would deny an enemy the opportunity to inflict mass slaughter on the American people."

In describing his proposed plan, Director Rodericks did not hesitate to brush aside Pentagon intelligence. He made his own estimates of Soviet strategic capabilities, weapons and intentions. He thought the main threat in case of war would be Soviet supersonic jet bombers, not missiles. "They have these bombers in the thousands and they can release nuclear weapons from them hundreds of miles away."

A month before he spoke, the Soviet annual air show had displayed two types of supersonic jet bombers. One was an experimental prototype, and the other obviously had much too short a range to reach the US. The only US supersonic bomber had similar range limitations, and hardly numbered a hundred. The prototype of the intercontinental US supersonic bomber was years from scheduled completion. While official estimates as to how few missiles the Soviets had were not publicly disclosed until October, Defense officials were advising the press at the time Mr. Rodericks spoke that Soviet jet bomber strength, medium and large included, was no more than 150.

That didn't faze Director Rodericks. Or perhaps he didn't know. Anyway, his civil defense strategy was meant to back up the White House: "The President could turn to the enemy during talks and say, 'Today you think you can kill millions. But one telephone call from me, and our cities will be drained'."

What might transpire should an evacuation plan be adopted was illustrated in the Washington area last October, when at 6:50 one morning a "telephonic malfunction" accidentally triggered the air raid siren at the Army's Walter Reed Hospital annex. Several hundred Washington area residents were jolted out of bed. The siren wailed for 15 minutes before technicians could turn it off.

Many of those aroused did what they had been advised by civil defense to do. They turned on their radios and tuned them to the Conelrad frequency to get directions. A nearby resident complained: "We tried to get the Conelrad stations but were a little disturbed when we didn't hear a thing." (At the time of this writing the Conelrad broadcasting stations had no fallout protection. Had there been a genuine nuclear attack, it is worth asking whether the radio staff would have stayed dutifully at their posts.)

Many others jammed fire and police switchboards with their calls.

"We were still in bed and we didn't do anything," Mrs. Harvey E. Conway told reporters. "But," continued Mrs. Conway, "it gave us something to think about." (The area of the scare included residences of various diplomatic or military aides of the embassies of allied, neutral and Soviet bloc nations.)

Mr. Rodericks was appointed director of civil defense from a post as administrator in the city Department of Public Health. It was a political appointment to patronize Sen. John Pastore of Rhode Island, under whose auspices Mr. Rodericks moved from Providence to Washington. Mr. Rodericks never attended any civil defense school prior to taking on the job of directing the civil defense of the national capital.

To review further the state of Washington civil defense would only be to prolong a sad tale. During the five months of the 1961 shelter scandal, the city's civil defense director and staff appeared unable to do other than what the District Commissioners complained about: proliferate the confusion and contradictions. And although civil defense of the city is under their executive control, the Commissioners made no move to correct the evils they observed.

Sauve Qui Peut

At a December 13 meeting in Washington, D. C., of the American Municipal Association's 21-man civil defense committee, Chairman Arthur Naftalin, Mayor of Minneapolis, stressed the committee's view that the federal government should make sure that the entire population is protected. It thought that "Where private financing is not available, federal assistance should include financial aid up to 100 percent grants for construction of public shelters."

Speaking for the 13,500 cities, towns, and villages he represented Mayor Naftalin said that most mayors

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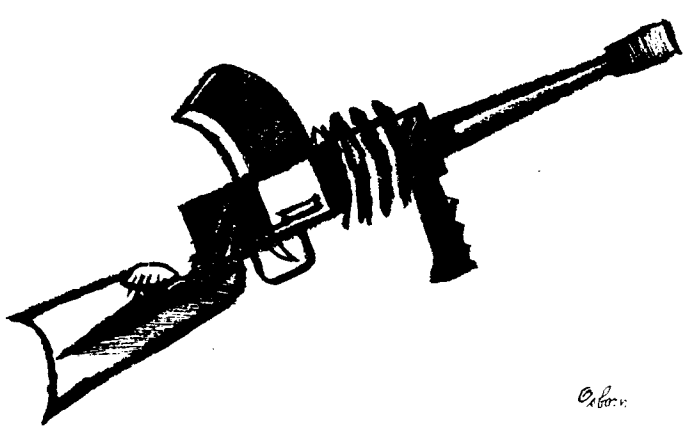
have been "generally at sea" about civil defense.

The National Association of County Officials had the same complaint. Late in October their Executive Director had queried his membership about civil defense, eliciting all sorts of specific grievances. "Our civil defense directors in this state think they are getting little if any effective direction from the federal government," reported one member. From another: "The program is highly debatable in this county."

On November 6, the Town Meeting in Lexington, Mass., met to decide what would be done about civil defense. Lexington had not been "at sea" in 1776. It was now. Two factors were reported by the *Lexington Minuteman* as responsible for the decision to do nothing: a "protest against the confusion on the subject of civilian defense not only here but throughout the entire nation"; and, "the speech by one of our leading citizens, questioning the entire philosophy and morality of the whole approach to the civilian defense."

"The entire philosophy and morality" of fallout shelters, and especially private shelters was gravely disturbing other Americans too. Back in Elk Grove Village in his Sunday sermon on October 15, the Reverend R. W. Winkelmann, pastor of the Church of the Good Shepherd, had castigated the "sick society" which he thought was shown by the most frightening symptom of the hour – the hysterical fallout shelter mentality which is being spread across the country like a disease." He likened this disease to a "fungus taking over our lawns."

Dr. Winkelmann got Elk Grove Village back into the national picture, this time by allying it firmly with Angus Dun, the Protestant Episcopal Bishop of Washington, D. C. Bishop Dun had been shocked to learn that a fellow Christian, a Roman Catholic priest of the Jesuit order, had editorialized in the magazine *America*, that a man has the right to use violence to keep his unprotected neighbors from entering the family fallout shelter after a nuclear attack. "Nowhere in the traditional Catholic morality," Father McHugh wrote, "does one read that Christ, in counseling nonresistance to evil, rescinded the right of self-defense which is granted by nature and recognized in the legal systems of all nations." Father McHugh's editorial was titled: "Ethics in the Shelter Doorway."



In commenting on Father McHugh's interpretation of Christian morality Bishop Dun said that it was "utterly immoral" to talk of using guns to drive neighbors away from a family fallout shelter. "I do not see how any Christian conscience can condone a policy which puts supreme emphasis upon saving your own skin, without regard for the plight of your neighbor. Justice, mercy, and brotherly love do not cease to operate, even in the final apocalypse. It would be infinitely better to go down decently to the final end than survive as less-than-human creatures."

Is Survival Competitive?

Such a policy, said the Bishop, puts survival on a "selfish, competitive" basis. It discriminates unjustly against millions of people who "lack the means or the opportunity" to provide such protection for their families. He asserted that "some families simply can't afford to build their own shelters," and that "many others live in apartments, and rent homes."

The Bishop was quite right about families often not having the means to protect themselves. Among the thousands of letters sent to the President was one from a Massachusetts mother, who told him that she had "neither the money nor the land on which to build a fallout shelter."

"For 12 years every cent we could spare . . . has gone into my husband's education, that he might become a better teacher, the best that he could be." Now, she said, her children, eight and ten, are asking when the family will build a shelter.

Besides noting that a do-it-yourself shelter policy resulted in economic injustices, the Bishop agreed with Chairman Holifield as to the basic impracticality of such a program. He thought it unrealistic to expect that individual initiative would produce enough shelters of the right kind, at the right places, to insure continuation of a "viable national community" after a nuclear attack. "It should be plain as a pikestaff to anyone who has given the matter five minutes thought," the Bishop observed, "that only community planning on a major scale can possibly provide anything approaching an adequate shelter system."

But however deeply concerned Bishop Dun was about the potentials for fractionalized, nationwide civil war for selfish survival, he was as much concerned with the survival of civilization in the postattack or recovery phase of a nuclear war. "The fate not merely of our nation but of humankind may depend on survivors who are young enough, and creative enough to

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pick up such pieces as may remain." He continued: "We might be able to get such people into community shelters. But I suspect that the kind of man who will be most desperately needed in a postattack world is least likely to dig himself a private mole hole that has no room for his neighbor."

Evangelist Billy Graham backed Bishop Dun: "I don't believe I could stay in a shelter while my neighbor had no protection," he said. Rabbi Maurice N. Eisendrath, head of the Hebrew Congregations Union, endorsed Bishop Dun's stand.

On the official Department of Defense front, the Assistant Secretary of Defense for Civil Defense also joined Bishop Dun. He said: "We should not shut our doors on our neighbors. That is not the way Americans live." The Atomic Energy Commission agreed. It had ruled out of shelters any sort of weapon as a result of tests of a 100-person group shelter in 1957-58. Their 1960 report on these tests said: "Possession of weapons of any sort could be dangerous."

Father McHugh stuck to his guns. In the November issue of *America* he granted that his first article "took a somewhat technical approach to the crisis of conscience that could arise for thousands of householders." He conceded that his "treatment of the principle of self-defense" in this manner "generated much emotional revulsion, especially among rabbis, Protestant clergymen and gentle souls who make too simple appeals to the 'unequivocal ethic' of the Sermon on the Mount."

He regretted that the world-famous Protestant theologian, Reinhold Niebuhr, has said that Father McHugh had given a "new and horrendous" twist to the shelter debate by "justifying murder." He seemed pained that "few indeed conceded, with Dr. Paul Ramsey of Princeton, that my code of emergency morality might be the one to which we are impelled, 'not by the cold light of reason, but by the warm light of Christian charity'."

No Shelter in Gettysburg

A fortnight after Bishop Dun had touched off the family fallout shelter debate, President Eisenhower said he hadn't built a shelter on his Gettysburg farm. He had been urged to do so. One reason why he did not was because he was "so deeply concerned that it would alarm the people." Although he had been in effect the head of the nation's civil defense for the eight years prior to the Kennedy Administration, he confessed he did "not know the right answer to give people on whether to build fallout shelters." Another worry about the projected shelter bothered the ex-President. "If I were in a very fine shelter and they [his family] were not there," he said, "I would not want to face that kind of a world and the loss of my family."

Former President Herbert Hoover made a speech in Omaha early in December giving his fallout shelter policy: no shelters of any kind at all. He wanted positive political action nationally and internationally. "We should keep our heads up looking for honorable solutions and selling America, rather than keep our heads down looking for shelters. . . ."

Was Elk Grove Village still listening?

Civil Defense in the USSR

Early last October, publicity was given to a memorandum previously prepared for the Office of Civil Defense and Mobilization before its work was taken over by the Department of Defense. A North American Newspaper Alliance dispatch quoted the memo as saying: "The USSR maintains an elaborate civil defense system and a massive civilian program of compulsory training." NANA reported: "Training for leadership in civil defense is handled primarily by a paramilitary organization known as the Voluntary Society for Cooperation with the Army, Air Force, and Navy." (DOSAAF, in Soviet abbreviation.) This group, the report said, has a "membership of more than 30 million." There were "indications" that inclusion of "protective construction features" in new apartment houses and other new buildings "has been a standard practice in many centers of population and industry." Already available "to an important segment of the urban population in many areas of the USSR" was "basement shelter."

The OCDM memo turned out to be another product of a RAND Corporation employee, Leon Goure, a Russian-born naturalized US citizen. He told the Holifield Committee on August 9, when he testified about Soviet civil defense, that his reporting "represents my personal views which are based on work I have done for the past three years on this subject for the RAND Corporation. . . . Since 1955, the Soviet Union has instituted a series of compulsory training courses for the population including men 16 to 60 years old and women 16 to 55." *Life* magazine of October 27 "bought" the Goure line and asserted that "Russia has already built its shelters and already has a superior civil defense organization." *Life* termed it a "challenging revelation." Though not unchallengable.

Mrs. Nikita Khrushchev subsequently told some Western "peace marchers" in Moscow that the Soviet Union was making no effort to build air raid shelters. "There is no defense in a nuclear war," she was quoted as saying, "therefore, we are not building any bomb shelters. We are not getting ready."

The ex-OCDM, by then OEM, forces swung into

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action. A NANA report on their memorandum declared: "If Mrs. Nikita Khrushchev really doesn't know that the Soviet Union has an extensive civil defense program, United States intelligence officers will be glad to give her some facts and figures." *Life* went along, taking the view that her "soothing statement . . . was accepted by most Americans because that was what they had been told all along."

The Goure viewpoint needed all the defense NANA and *Life* could give it, for the opposition was strong and grew stronger.

What the Journalists Found

The United Press International vice president for Europe and Africa, Thomas R. Curran, in a dispatch of September 29 filed from London immediately on his return from Moscow and Leningrad, reported that neither city showed "signs of gearing for war." "I did not see a private bomb shelter," he specified. He wrote: "Henry Shapiro, United Press International manager for Russia and dean of American correspondents in Moscow, was asked about the Russian equivalent of the American civil defense program." Mr. Curran said Mr. Shapiro replied: "In a nuclear war there is no civil defense."

On October 20 Henry Shapiro himself reported from Moscow: "The last time I heard an air raid siren in Moscow was in 1943 when German troops were several score miles from the capital. There have been no public drills since before the war when whole factory crews and school student bodies walked the streets in gas masks." He wrote: "No foreigner here has seen any civil defense shelters. The average citizen is unaware of the existence of shelters – although just before World War II most apartment houses had basement shelters." "Housing in Russia is largely a state enterprise and the state is too busy with a fantastic housing program to worry about fallout shelters. Cellars of new 8 to 10 floor housing compounds are too shallow and too small for conversion into shelters."

As for do-it-yourself "lean-to's": "There has been no campaign for home-built shelters, nor have stores advertised do-it-yourself kits. If a private individual wanted to build a shelter he would have trouble finding bricks, cement, nails or wood."

But what of the Moscow subways which Mr. Goure made much of as potential shelters? Mr. Shapiro noted "most of them were built in the 1930's when nuclear weapons did not exist." As a result, "their ventilation systems are prewar and entrances wide open. . . . Considerable alterations would be necessary to make them adequate protection against radioactive fallout." The same applied to subways in Leningrad and Kiev.

As for popular attitudes, Mr. Shapiro wrote: "Yesterday UPI correspondents questioned a dozen Soviet citizens on the street about what they would do if nuclear war began suddenly." He reported: "Most shrugged their shoulders in surprise, as if to say 'Are you out of your mind?' Others indignantly muttered something to the effect, 'He must be an American provocateur'."

Mr. Shapiro summed up: "There is little outward sign of, or public interest in, widespread civil defense against a nuclear war." Nuclear war, when treated at all, was a sort of Soviet sick joke. "Many Russians seem to feel that there is no real defense in a nuclear war as evidenced by this grim joke going the rounds:

"*Ivan:* 'What would you do if a nuclear war started?'

"*Dmitri:* 'I would get into a shroud [sheet] and walk slowly toward the cemetery'.

"*Ivan:* 'Why slowly?'

"*Dmitri:* 'To avoid panic'."

The joke was taken so lightly by officialdom that Radio Armenia broadcast it.

Little more than a week later, Preston Grover of the Associated Press lined up the other major US news service with Mr. Shapiro's anti-Goure line. "Attachés from embassies who have looked round the country for sign of shelter have found nothing. Foreigners live in many of the newest buildings put up in Moscow, and they have no bomb shelters." There were no shelter signs, as in New York. He did say that there was a 10-cent December 21, 1960, pamphlet on fallout shelter advice, available in bookstores along with colored posters. But: "There are no indications it is a best seller."

On Christmas eve, the *New York Times* published a report from Moscow by Harrison Salisbury. "About 12,000 miles of travel in the Soviet Union by this correspondent in the last four weeks failed to turn up evidence of a single Soviet bomb shelter," he began.

"The question of whether or not the Soviet Union has a shelter building program has aroused widespread controversy in the United States," Mr. Salisbury wrote. "Leon Goure, research specialist of the RAND Corporation, which does most of its work for the Air Force, has presented several studies contending that the Russians have a wide program for sheltering population and industry from atomic attack."

"Mr. Goure's reports," he observed, "are largely based upon a study of Soviet civil defense and military literature." As to their validity: "They have been vigorously challenged by observers on the scene within the Soviet Union." Like Mr. Grover of the AP, Salisbury said: "Diplomats, foreign military attachés, and correspondents who have travelled widely in the Soviet Union report that there is no visible evidence of a widespread shelter program." Furthermore, he added, "The lack of visible evidence . . . is paralleled by

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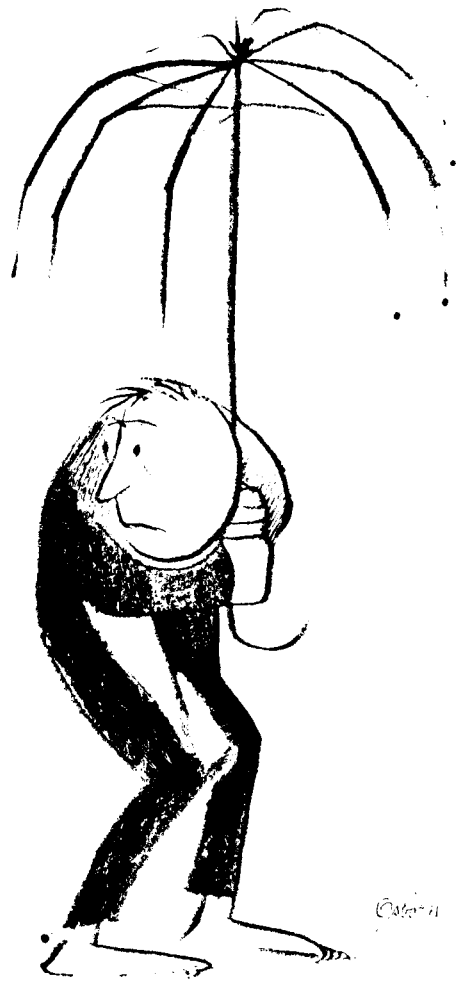

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the lack of any talk of shelters by Soviet citizens."

Mr. Salisbury correctly noted that the Soviet DOSAAF organization has only very partially to do civil defense training. It has far greater interest in rifle clubs and shooting, "ham" operators, automobiling, and the like. Very popular and most encouraged are aviation "sports" like gliders and gliding, model planes, light plane and helicopter flying, and parachuting. "No special interest on the part of the public in these activities [civil defense] has been discerned," he wrote.

"Ready for Labor and Defense"

What was missed by Mr. Salisbury, as well as by Mr. Goure and many observers of the Soviet civil defense scene, was that what might be called basic general defense training is a prerequisite for all who have come of military age since 1945. At 19, a man is supposed to have done the work needed to qualify for the "Ready for Labor and Defense" badge. To see that every male qualifies is the job of the local draft board, which is run by the Army. And in the 11-year school span (still prevalent only in cities), the boys get far more military training than is required. During their last three years, they get (in scheduled classroom hours) more than the equivalent of the US Army's 17 weeks of recruit, basic, advanced and unit training. In addition, they have at least one two-week summer encampment. The instructors generally are military veterans. The civil defense training thus imparted is incidental to much broader military training. If the trainee is fit to soldier in nuclear war, he is even more fit to cope with civil defense.

However, the Soviets do not separate civil from general military defense. Americans who, like Mr. Goure, attempt to do so, end up in a welter of errors and confusions by trying to compare the total Soviet system to peculiar and limited American concepts and practices. The Soviets believe that the nation as a whole should be ready for all kinds of defense – military, health, civil. This was often shown in World War II. At one moment the workers of the Tula Armory took air raid precautions against German bombers. Later, they were making roadblocks in the streets of the town against oncoming German panzers. They made and manned field fortifications to help the active Army, and passed from passive to shooting defense, then back again.

Questioned about Soviet civil defense at his press conference on December 14, the UPI, AP and *Times* being present, Deputy Secretary of Defense Gilpatric said: "I have read a good deal of conflicting information on it. My own impression is that they are doing more than they say, but I don't have very precise intelligence on that subject." Only Mr. Goure did.

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The "Think Factories"

"At this moment all countries are likely to be at the mercy of their scientific salesmen," said C. P. Snow in his Godkin lectures at Harvard last fall. These new types are nothing like the old-fashioned drummers of commerce. They are administrators of scientific work in the departments of the great universities, the research foundations, the nonprofit corporations which in structure and function resemble an extramural civil service. They first became conspicuous during the last war when gadgets of the utmost importance were being developed in university laboratories. In England, as Sir Charles tells the story, it was radar. In the US it was the atom bomb.

In their capacity as advisers to scientifically naïve statesmen and generals they wielded great influence. They indirectly directed the expenditure of billions of dollars. New industries arose as their views of scientific requirements for the conduct of war dictated. Old industries expanded or shrivelled as priorities for essential raw materials were raised or lowered by the same influences. The atomic detonations over Hiroshima and Nagasaki demolished the notion that soldiers would ever be able to prepare for the war of the future without the help of scientists.

After the war, most of the academics returned to their campuses, and the US defense establishment began to place greater emphasis on scientific and technical competence in the ranks of career officers. Younger military professionals with the ability to absorb such training were encouraged to go back to school.

It was during this interregnum in the late Forties that the senior personnel of the armed services discovered a device for reversing the flow of scientific competence from the Pentagon to the universities. They encouraged the universities to form "defense studies" groups. Research contracts were used by the armed forces to circumvent civil service pay scales and personnel regulations. The government went into the business of bidding for scientists and technicians at any cost, if they were deemed essential. This escalation by contract continues, and it is highly relevant to the civil defense muddle. "A primary responsibility for this hoax on public opinion," Gerard Piel, publisher of the *Scientific American*, said some months ago in San Francisco, "must be laid to those authors of fraud by computer who produced the literature that argues the feasibility of thermonuclear war."

One of the earliest of these operations was Mr. Goure's employer, RAND, begun by the Air Force in 1946 and chartered as a nonprofit corporation shortly thereafter. RAND now has over 900 employees and an annual Air Force budget of around $13 million. Other important private groups of the same type are the Stanford Research Institute, Aerospace Research and the Institute for Defense Analyses. Such sub-academic "think factories" have grown so big that they compete with their contractors, the government itself, as well as with the military industries, for the available services of scientists. Long-established federal agencies like the National Bureau of Standards, the Naval Research Laboratory, and the National Aeronautics and Space Agency are being deserted by their scientific personnel at such a rate that "for the first time," (*New York Times*, December 4, 1961) "the problem is receiving urgent, coordinated consideration at the White House level."

Today about a billion dollars of government research funds go to the universities and nonprofit organizations each year. According to the Director of the Survey of Federal Programs in Higher Education, the effect upon the universities has been profound. In 1958-1959, for instance, Princeton University received 55½ percent of its total operating budget from government research grants. Others received even more in the same period: the California Institute of Technology, 84 percent; Johns Hopkins University, over 67 percent; the University of Chicago, more than 61 percent; the Massachusetts Institute of Technology, more than 78 percent; and the University of California, 54 percent. Columbia and Cornell received about a third of their operating budgets from such grants; and Harvard, Yale, Tufts, Michigan and Duke about 20 percent, in each case. Indeed, one West Coast university (otherwise unidentified) was reported to have 1,700 research contracts with the government, and was negotiating new ones at the rate of five a day. And surprising as the statistics may appear, they probably understate the situation as it exists now. The total amount of federal research grants to universities and "think factories" increased 35 percent from 1958 to 1960.

The salaries maintained by this largesse range up to twice the civil service standard and beyond. For example, while the director of a government laboratory such as the National Bureau of Standards, receives $19,000 a year, his counterpart in a nonprofit corporation (or in the research department of an industrial company) generally receives $40,000 and on up to $75,000.

Studies for the Military

These "think factories" have broken out of their once exclusive pre-occupation with *things* like magnetic or sound-triggered mines, conventional explosives or H-bombs, radar and telemetry and have advanced into the sphere of *ideas;* they devise policies that are responsive to the problems faced by the contracting agencies of the Federal government, which are chiefly located in the Department of Defense. To illustrate, in 1950 a sub-academic contractor to the Department of Defense prepared a study of "Areas to be Defended against Attack by Air," which investigated the effects of atomic attack on various specialized sectors of the economy and recommended possible mobilization action. In 1956 a contract study of "US War Potential Under Air Attack" was done for the same Department. It contained estimates, four years in advance, of losses resulting from air attacks on targets of industrial significance in 1960. Another study, done in 1952 for Federal civil defense agencies examined the "Coincidence of Industry and Population Targets," a comparison and correlation of locations of ground areas (targets) for maximum damage for each metropolitan area of the United States. In 1956 the same group did a follow-up study for the Federal Civil Defense Administration entitled "Analysis of the Effectiveness of Civil De-

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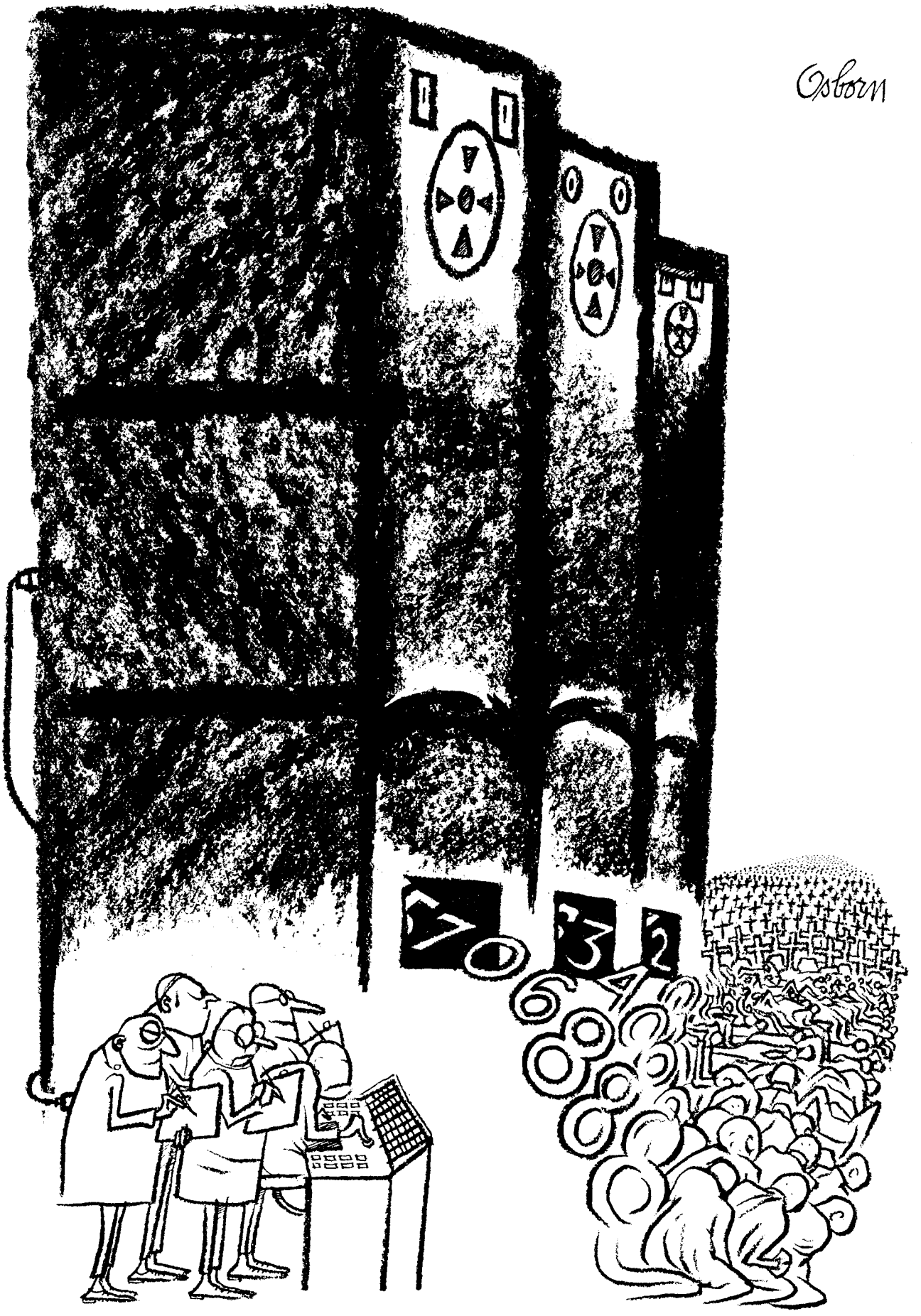

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fense Measures," described as an investigation of the relative values of several shelter and evacuation programs in preventing blast casualties for various city sizes and attack conditions. In 1959 the same group, still under contract to the civil defense agency (now OCDM) prepared a forecast on the "Attack Damage Threat in 1960 and 1965."

Bases or Cities?

When Secretary McNamara and his special assistant Mr. Yarmolinsky testified last August they were familiar with the conclusions of these secret studies. They also knew that the Air Force, the most "pushy" of the armed services, had adopted a new strategic policy in 1960 which has a direct though as yet little-grasped bearing on civil defense – a policy of "counter-force" against Soviet military installations. This policy is buttressed by contract research, much of it done by the same sub-academic groups who work for the civil defense authorities.

What the Air Force Generals Thomas D. White (Air Force Chief of Staff) and Curtis E. LeMay (at that time Vice Chief of Staff) told the newspapers in the late summer and early fall of '60 was that the new strategy would downgrade the risks of atomic warfare to the level of radiation from fallout, so far as the vast majority of civilians in this country were concerned. There would be minimal danger of H-bomb blast or thermal radiation in or near the population centers. Those terrible effects, against which it is conceded there can be no defense for large numbers of people, would be concentrated, they said, upon military installations, *ie*, Strategic Air Command and missile bases practically all of which are sited in fairly remote areas west of the Mississippi. The Soviet missile capacity had been over-rated; and for the time being (one year, two years?) US superiority in bombs deliverable to Soviet military targets would sharply limit the damage Soviet rockets could inflict on us. Thermonuclear war was not, as Mr. Eisenhower had said, "unthinkable." It could be fought and won.

The implication of this theorizing – for that is what it is – is not only that nuclear war would be endurable, but that it could be fought without inviting "unacceptable" damage to civilian society, and that therefore civilian protection against the blast, burn or radiation from nuclear weapons is not an urgent need. Civilian damage is a side-effect of "counter-force" (bases *vs* bases) strategy. Now, the Generals are not concerned primarily with civil defense, of course, so the way in which they came to this conclusion strictly by following their usual line of self-interest, which is to argue for more of the Defense budget, more bombers and missiles, is instructive. It proves, for one thing, that *the way to understand civil defense policy*, particularly now that it is in the hands of the Office of the Secretary of Defense, *is to study prevailing Air Force doctrine.*

In August, 1960, General LeMay said in a speech at Fort Worth that only a strategic striking force made up of land-based missiles and bombers could deter a big war, because it alone can win it. Reliance upon the smaller mobile missiles in the Navy's Polaris submarines would be risky because they are not adequate to knock out the enemy's missile bases. They are too inaccurate. They would have to be used against large and "soft" targets – the enemy's cities. But if this were done, though the enemy's population losses would be heavy, his capacity to strike back would not be destroyed and he would, in retaliation, aim his missiles at *our* populated areas. In other words, to work properly, "counter-force" must be powerful enough to destroy Soviet strategic forces and war-making capability. As General White said on another occasion: "Don't aim at the enemy's cities; destroy his military forces." We will be spared, according to Air Force war gaming computations, the unnecessary deaths of perhaps 100 million Americans.

War gaming by electronic computer on one occasion came up with the information that an all-out Soviet surprise attack on US Strategic Air Command and missile bases *and cities* would kill 180 million Americans out of a population of 190 million in 1963; and 50 million Russians out of a population of 220 million would be killed by our retaliatory forces. And, if the United States directed a similar surprise attack at Russia, 75 million of its people would die, and there would be 100 million American dead. In sum, we lose either way. In a war of this type, of course, fallout shelters would be of little practical use.

On the other hand, a US H-bomb "pre-emptive," or first strike, limited to important *military* targets, would produce, by computer, five million dead Russians, and the weakened Soviet retaliatory forces would only kill three million Americans. We would win! According to Air Force sources this conclusion was repeatedly tested by feeding the computers a variety of data, but all processed according to the same program. The numbers and ratios of weapons of every pertinent sort were changed on each side. According to an Air Force spokesman interviewed by correspondent Richard Fryklund of the Washington *Evening Star*, "The computer was told to assume that intelligence had located 75 percent of the proper targets in the Soviet Union, then 50 percent, then only 25 percent. Good civil defense efforts were cranked in, then no civil defense, then improved civil defense. . . . No matter what was tried, the conclusions were the same: American chances of winning increased, and the number of American dead decreased by 100 million or more if the US tried to destroy only the enemy's long-range striking forces and his air defense."

Will the Russians Play?

The studies led insistently to one conclusion: every US missile or bomb wasted on a Soviet city would leave a Soviet missile or bomber free to attack this country; and US attacks on Soviet cities would impel the Russians to hit ours. However, thermonuclear war could be reduced to manageable dimensions and a satisfactory conclusion assured if the military, or rather military forces on both sides, agreed to fight each other exclusively – *and* if the Americans were allowed to attack first.

Civil defense policy in 1962, as promulgated by the Department of Defense can thus be viewed as a by-product and concomitant of what are essentially Air Force strategic assumptions. The inferences which can be drawn from these assumptions are that: (1) a first strike by the US solely against Soviet military installations would give us a military advantage; and no extensive sheltering of

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our population would be needed; (2) if *we* got hit first, but only our bases were attacked, a fallout shelter program such as that proposed by the Pentagon would be worth the investment; it might insure from 10 to 15 million lives; (3) if the Russians do hit our cities, our sea-going Polaris and our bombers will clobber theirs; and if the Russians are persuaded of this, they will *not* hit our cities; and (4) if cities *are* clobbered, all kinds of protective shelters will be clobbered too – and there isn't much that could then be saved.

One can now more easily comprehend the lines of thought that led to our present civil defense program. A substantial blast shelter program, as Secretary McNamara said last August, would not be advisable. It would compete in the Pentagon's budget with "active" defense systems, while an "austere" fallout shelter program would require relatively small sums and thus not be competitive. And, as the computer studies had shown, the latter program, *depending on one's attack assumptions*, might be helpful.

Referring then to another computer-processed study, the Secretary reminded the Holifield Committee that in 1959 it reported on the results of a study of a hypothetical, more limited attack against our cities in which "it was estimated that approximately 50 million Americans would be killed, and some 20 million others sustained serious injury." Seventy-five percent of the deaths on this hypothetical occasion, he went on to say, "resulted from blast and thermal and immediate radiation effects." What this means is that an average of 37.5 million deaths would occur in ways that fallout shelters could not prevent. *But 12.5 million deaths would be from fallout;* and it is this remnant, the Secretary argued, that could be saved by the Pentagon's shelter survey program.

How Big Will the Bomb Be?

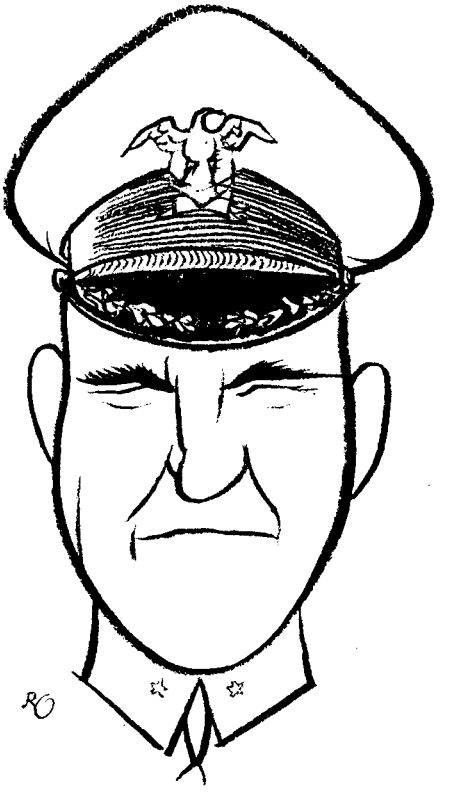
Who can be against saving 12.5 million lives? Or one life, for that matter. Why does Gerard Piel describe this as a "hoax on public opinion"? For one reason because when this nuclear attack was hypothesized and its consequences computed, the largest Soviet H-bomb that had yet been exploded was a 15-megaton weapon; indeed, most of the witnesses from the "think factories" testified at these hearings about the specific effects of *10-megaton weapons.* Khrushchev's latest weapon is almost four times the size of the biggest one ever detonated by the United States. What such a monstrous bomb can do, we can only project, somewhat shakily, from data based on the explosion of smaller devices.

When, last November, Soviet Defense Minister Marshal Rodion Malinovsky explained to the 22d Communist Party Congress in Moscow the official Soviet doctrine on war in the age of nuclear weapons and long-range rockets, he stated that the targets of crushing nuclear attacks would be "formations" (major groupings) of the enemy's armed forces, industrial and populated centers, communications – everything, in fact, which might contribute to the conduct of war. That should have wrapped up the cities *vs* bases controversy, but it has not. For the fallout shelter program is premised on the conviction that the Russians will not do what Malinovsky says they will try to do in the event of nuclear war.

The Soviets had just exploded their superbomb, which turned out to be of 55 instead of 50 megaton size. They also had successfully completed a series of tests impacting into the Pacific Ocean boosters even more powerful than the ones they had tested in the summer of 1960. Based on the latter-type boosters which put the Soviet spacemen in orbit last year, rocketeers in the US and England calculated that the Soviets had ample power and accuracy to loft 55 to 100 megaton bombs (how many is still a matter of debate) and get them right on target.

The President's special statement issued immediately after the 55-megaton blast said: "The device exploded does not add in military effectiveness against military targets to nuclear weapons now available both to the Soviet Union and the United States. It does not effect the basic balance of nuclear power. Any such weapon would be primarily a mass killer of people in war." And who is to say that, if war comes, these bombs will be aimed – contrary to Marshal Malinovsky's assertion – against "military targets" only? The bomb indeed is a "mass killer," and if there is a nuclear war, can any one of us be confident a "mass killer" will not be employed? And if it is employed, how safe is anyone in any sort of shelter?

With the Soviets' demonstrated capacity to deliver to populated areas huge airburst thermonuclear bombs capable of burning everything within a diameter of about 140 miles and their capacity to inflict greater blast and cratering damage on military installations than even supposedly "hardened" sites – those protected against nuclear blast – can sustain and still survive, each person may ask himself how much survival insurance is represented by the "lean-to's," the ditches, the converted basement shelters pictured in the Department of Defense booklet. There's nothing selective about a 55-megaton bomb, even if it hits exactly what its sender meant it to hit – unless, of course, we hit the enemy first



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and hit straight, and even then he may have enough retaliatory power left intact to do incalculable damage to us.

The Congressmen on the Holifield panel, three months prior to the detonation of the 55 megaton bomb, were aware that bombs of very great force could be made. They pressed the Secretary about his sources of information on Russian capabilities and what survival prospects might be. McNamara repeated his belief that 10 to 15 million lives could be saved by the proposed fallout shelter program. Congressman Holifield then reminded the Secretary that "this leaves out of 185 million in the total population, 170 million people subjected to the hazards of the attack. You are aware of that, naturally."

To which McNamara responded: "Well, it leaves only the 140 million, approximately, that are not in the shelter spaces, subject to the fallout hazard." Now the point of this grim dialectic is that neither man's arithmetic is necessarily wrong. It is just that we have risen to such a pinnacle of refinement that one high official prefers to say of the contingency under discussion that 92 percent of the American people will be in danger of death; while another prefers to say that only 75 percent will be in danger of death, since 17 percent will surely die.

Computers and Calculators

Congress has not provided funds for the stocking of all the public shelter spaces that are to be found and marked in the current fiscal year. (3½ gallons of water and 10,000 calories of a nourishing form of hardtack per person – which works out to about 700 calories daily.) Other shortages of Federal funds for Civil Defense may turn up in the future. As a consequence, as one Pentagon official has testified, "the problem of maximizing the effectiveness of our dollars and cents" must be faced. Computer analysis, he told the Holifield Committee, will enable the Pentagon to "sequence this program in such a manner as to buy the most lives with each incremental expenditure of money."

Here is how computer analysis works. Three months after the testimony before the Holifield Committee hearings, it was announced that the shelter survey which was to commence in December, 1961, and be completed in a year would be finished in half the time. It is unusual for Federal projects to be completed with such speed. Advanced computer technique is the explanation, according to Mr. Visher, Deputy Assistant Secretary of Defense for Civil Defense. The computers will process the findings of the fallout shelter surveyors, and that is what will cut the time in half. What this must mean is that computer technicians will scale the shelter space data sent in by contract surveyors working in the field with tape, pencil and reading glasses to (1) the number of such spaces needed in that area by the men, women and children who live or work in it, or adjacent to it, at any time of day or night; (2) the amount of protection against radioactive fallout that must be provided such persons on a generalized attack hypothesis as it would affect that particular area if the winds blow with an average velocity in an average direction on an average day of the year; and (3) the priority that is to be placed on the outfitting of the fallout shelter spaces in the particular area in view of the limitations, whether of money or time, under which the Civil Defense agency is required to act.

Quite a few variables here. There is no set standard of performance, or of protection. There is only a sum of money from Congress, and a new mystique of number magic.

Processed by computers, ambiguities take on a spurious air of definiteness. The computer vogue has made the inhumane seem practical; the implausible, plausible. Lives become numbers, and numbers, as Herman Kahn says, are something one can think about. But the use of computers to "read" the potential enemy's mind is a misuse of the machine. It is further misused when it is employed to "read" the potential enemy's target intentions. And it is just such "readings" that have guided civil defense officials in planning the kinds of shelters that should be built, where they should be built and the priorities in equipping them.

The power that this technology confers on its practitioners is such that they spend public funds on matters of life and death as their discretion directs. They are not even asked to explain just what it is they know. Mr. Cannell did make an effort at the Holifield hearings, but he was not pressed and this is a fair summary of what came out: The least attack assumed is one that would focus on missile bases in order to knock out the retaliatory capacity of the US military establishment. The upper attack assumption would be one directed against our whole economy as well as missile and SAC bases. Between these limits one can postulate any number of specific attack patterns, such as retaliatory bases plus petroleum refineries, or any other combination. What we must contemplate and presumably protect ourselves from, therefore, is a spectrum of destruction that ranges from missile and SAC bases primarily, to people primarily. "Once we have targeted in this fashion," says Mr. Cannell, "we use computer techniques to estimate the number of people who would be blast casualties and who would die within various levels of radiation. So when we say the estimates of those who would be saved by the program we propose lie between something on the order of 15-35 million, the reason is . . . that there is that range of kinds of attack you could receive. If he struck at one target complex [you could] save the lower number. If he struck at another, you could save the upper."

Man and Machine

Mr. Cannell deprecated the delusion of most people: they visualize the H-bomb as aimed directly at them, and they see themselves inside the fireball. Although the area of blast destruction caused by a relatively small (5-megaton) weapon happens to coincide with a city the size of Indianapolis, the enemy cannot reckon on hitting exactly what he aims at – cannot, in the mystique of this business, put the weapon down on designated ground zero. Fallout shelters in Indianapolis thus might

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save people (from radiation) because they will not have been blasted or burned. It then occurred to Mr. Cannell that these remarks might be misconstrued to mean that despite all the efforts of OCD-DOD over the foreseeable future, our lives will depend on the enemy's aiming errors. This is a splendid example of a man trying to reason like a machine: "I oversimplified the problem by explaining it in relation to one per city, which isn't necessarily the way one targets. Usually you have to assign more than one weapon to some of the larger cities, which means some of the smaller ones don't get any. . . . There are all of these optional ways to assign weapons, but on a national estimate, you still have so many weapons to assign. If you don't save [or kill] people in one place, then you save [or kill] them in another."

Operation Patch Up

And what of those who are "saved"? What of the problems of immediate survival, or patch-up as Mr. Kahn puts it, for those who find themselves alive after the hypothetical attack? That question too has been put to the "think factories." The Department of Defense has let contracts to Human Sciences Research, Inc., for studies of the *social effects of the physical damage* that can be caused by H-bombs. Another study recently completed for the Air Force by this group (*Social Phenomena in a Post-Nuclear Attack Situation*) has been run off as a pamphlet and is now being sold in bookstores and at newsstands. Here, the "disaster syndrome" is defined as a state characterized by five symptoms:

(1) Apprehensive avoidance
(2) Stunned immobility
(3) Apathy and depression
(4) Docile dependency
(5) Aggressive irritability

Prior to death, the study informs us, "there is likely to be an intense personal reaction, often in the form of acute anxiety accompanied by temporary impairment of ego functioning." Or to put it another way, "In a surprise nuclear attack, people would lack a predispositional set to face the catastrophe and deal effectively with the danger at hand." If surprised, they will be surprised, and they will act for the moment in a confused way.

After the disaster, and while presumably still afflicted with this specific syndrome, "bombed populations will have a tendency to react with a certain amount of hostility toward their own government" although generally speaking "post-disaster behavior tends toward the reconstitution of pre-disaster institutions, rules of behavior, and activities of everyday life." The important thing to bear in mind is the affirmative rule that "concern for one's immediate family is one of the most dominating and prevalent characteristics of disaster-struck people . . . [and] next to the family, the only other grouping which would have significance for ordering behavior in a crisis situation is that of the neighborhood." If there is nothing left but a family, its members will stick together; if there is also a neighborhood, they will join. And if the government survives too, the families and neighborhoods – the whole population – may combine to criticize it. For that reason among others, the most important of which is that "the incidence of role conflict among the survivors will retard the effective establishment of a new division of labor," the authors of this study deprecate optimism.

They disagree strongly with Herman Kahn's assumption that people in a post-disaster situation will act rationally in their own best interests. "Such an assumption may appear plausible, but it presumes that people will know what their own best interests are in a unique situation which they have never before experienced." Nor has anybody else experienced it including the authors of the contract study.

The difference between these sociologists and Mr. Kahn is interesting. In his treatise *On Thermonuclear War* and his testimony before the Holifield Committee, Kahn was engaged in a more subtle enterprise than they. He recounts the horrors of thermonuclear war so insistently that readers and listeners to his lectures often flinch and cry out for world government, or the end of history. But Kahn emerges optimistic about the patch-up after the worst is over. True, unlike a conventional attack, the violence of a nuclear strike will be greater, it probably will affect more extensive areas, and kill and wound more people, *but* it will be over in a few hours or weeks. Thus, people will not have had time to change much psychologically; those who survive in fairly good health will set to work reconstituting, according to the best of their ability, the old order.

The Contribution of Kahn

Kahn's contribution to the rationale of passive (*i.e.*, civil) defense is so important he deserves more detailed mention. He was trained as a physicist but as a member of the RAND Corporation he turned to defense planning. After more than a decade of study he compiled *On Thermonuclear War*. There the basic reasoning behind a civil defense effort is exposed. Kahn's central notion can be best understood if one bears in mind that he was employed (although at one remove) by the Air Force when he developed it.

His reasoning runs this way: No matter how fast and heavily gunned the Air Force's fighter planes may be, they cannot shoot down intercontinental ballistic missiles. Since these missiles may be armed with nuclear warheads – and the Russians do have such ICBMs and the capacity to shoot them from their own territory into the United States – it follows that despite the Air Force this country may come under an H-bomb attack. Anywhere from hundreds to thousands of megatons of H-bombs might be exploded in various sizes at different altitudes (or at ground level) over civilian or military targets – cities or missile bases. How can a nation (or an individual) "stand up to" a menace of this magnitude?

The answer is that in the teeth of this threat we must project a convincing posture of firmness, of willingness to risk our own destruction. If one would arouse conviction in another, argues Kahn, one must begin by convincing one's self that a thermonuclear war will not necessarily result in the destruction of civilization. "Credibility does not

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involve the question 'Do we or the Soviets have the capability to hurt the other side on a first strike?' It is well known that this capability exists and in all likelihood will continue to exist. Credibility depends on being willing to accept the other side's retaliatory blow. It depends on the harm *he* can do, not on the harm *we* can do. It depends as much on *air defense* and *civil defense* as on *air offense*. . . ."

In this logic the part played by civil defense is crucial: it is the key to *credibility* because, to put the point in plain English, we can only convince others that we will dish it out if we are prepared to take it: civil defense is the logical complement to the stockpiling of H-bombs and missiles.

Thinking Big

The present civil defense program is a monument to the power of Mr. Kahn's thinking not merely in its general drift, but in the details too. His basic paper on the subject, "Some Specific Suggestions for Obtaining Early Non-military Defense Capabilities and Initiating Long-range Programs" was circulated as a RAND Corporation research memorandum in 1957. It called for an expenditure of $500 million and for far more research. As a matter of fact, he called for $200 million worth of *thinking* about the subject.

The Congress and the White House have followed him essentially in every other recommendation; but they just cannot think as big about money as he does –"somewhere in the neighborhood of under $5 billion annually." This has provoked in him an understandable sensitivity. "[My] dollar recommendations may be considered as quantitative expressions of intuitive judgments; still, I probably have substantially more justification for my estimates than do many official proposals in this field . . . I am prepared to defend the numerical recommendations – even if as an analyst I have to concede that *there is incomplete documentation.*"

The mixture of brutality and optimism in his style of talk is meant to suggest, to those who are not exasperated by it, that he has an especially firm grasp of "reality." But to achieve the fact as well as the air of success he must postulate a victory of sorts at the termination of a nuclear conflict, not necessarily in the sense of winning an H-bomb war (this is too unlikely for "credibility" today) but in the sense of "surviving to sign the peace treaty," as he has phrased it. "Civil defense," he has written, "could save the lives of as many as a hundred million people, and under some not improbable conditions [unspecified] could keep casualties down to one or two million."

Mr. Kahn told the committee that a RAND Corporation research group under his leadership suggested the current "identifying, counting and labelling [fallout shelter survey] program . . . in late 1957 and early 1958, for implementation in 1959. We added that it ought to be in by 1960, because it might be partly obsolete by 1963 or 1964." Actually, the present survey and stocking program cannot be completed before 1963. But this is a trifling objection, *because the attack assumption postulated by the "think factories" was wholly obsolete the moment the Soviet Union began to plan for a supply of superbombs* – that is, on a conservative estimate, about the moment Mr. Kahn promulgated his original suggestion.

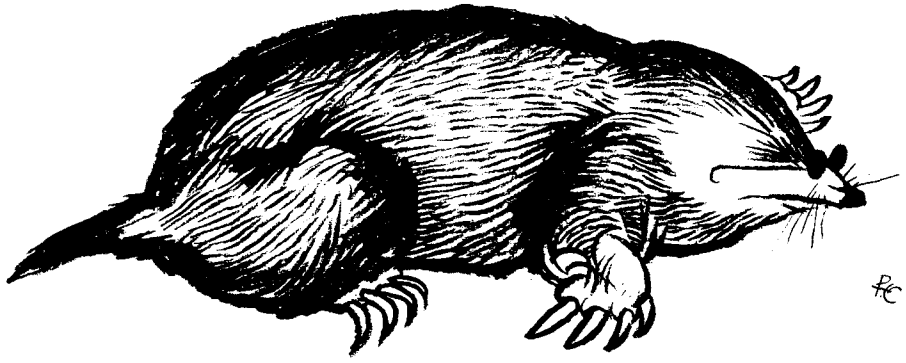
The cure for such galloping obsolescence in our civil defense planning, which leads to programs that cannot assure effective shelter even if they are completed on schedule, was still more research. "Actually," Mr. Kahn says in *Commentary* of January, 1962, "obsolescence is less serious a problem for civil defense than for many other military systems because even a civil defense system which has been outstripped by technological developments may nevertheless provide a large degree of protection *(depending again on the kind of attack that is made)*." [Italics added.] According to Mr. Kahn, the decision about how much money should be spent on civil defense, which has so divided the Congress, should be itself researched. That, he maintains, is one of the questions that a substantial study program will resolve.

The position of this researcher and his associates in the field of civil defense planning is so influential that this advice will be earnestly debated in the next session of the Congress and some of it, probably, will be enacted. Mr. Kahn has already left the RAND Corporation to set up shop with a number of civil defense-minded analysts like himself. The name of the new nonprofit corporation is the Hudson Institute, Inc., at White Plains, N.Y. Its first announcement says in effect that the world has become too complicated for common sense; technological progress and the cold war "have reduced the reliability of practical experience as a guide to policy."

A Special Vocabulary

This emphasis on the study of policy problems, including those related to civil defense, by an elite group of analysts, whose varieties of *expertise* are communicated to one another in a shared but special vocabulary comes straight out of one of the appendices of *On Thermonuclear War*. There Mr. Kahn states: "Every study with which I am familiar that has resulted in new views or the production of an orienting 'philosophy' has taken more than two years to complete and has required a team. The goal of this activity is to have decision makers [the President and other top officials] so competent and well informed that we have some of the benefits of an 'aristocracy' without the well-known disadvantages."

Mr. Kahn speaks not only of true or



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correct conclusions as a measure of the utility of the long-range studies which he advocates, but of the *newness, comprehensiveness,* and *acceptability* of those conclusions to the contracting agencies of the government. This can, in fact does, mean that there was nothing wrong, from this point of view, with the study that comprehensively and acceptably proved to the Air Force that a "jet bomber gap" between the US and the USSR existed several years ago; it enabled that branch of the armed services in 1956 to wring some $2 billion more from a reluctant Congress for Boeing B-52 bombers. Likewise the hypothetical *medium heavy* H-bomb attack on the United States, described in such close detail to the Holifield Committee by RAND Corporation researchers, was also when first concocted comprehensive and new and acceptable; it enabled the federal civil defense agency to secure sharply increased appropriations. Today we know that the bomber gap did not exist and the H-bomb attack forecast went out of date about the time it was first offered.

Ants on a Log

According to the official in charge of most of the contract thinking at the Department of Defense, Henry S. Rowen, Deputy Assistant Secretary for Planning and National Security Affairs, about two thirds of the theories that circulate around the Department come from outside researchers, but "the notion that policy gets formulated in any coherent, logical way does not seem borne out by my observations." And he compared the Pentagon to "a log going down the river with 25,000 ants on it, each thinking he's steering the log."

Madison Avenue has discovered that most of us are afraid, so it offers beauty aids to women who fear they are unattractive and cigars to men who fear they look only half manly. Neither of these remedies has anything to do with beauty or glands, but they service the *appearance* of the difficulty that bothers the customer. In the same way the quantitative analysts operate in the sea of uncertainty that surrounds us. The motto of their craft is: anybody may have an opinion, or an estimate, but a number is something solid. One can tie onto it and stop drifting. "The analyst," says Mr. Charles J. Hitch, one of the most notable practitioners in this field (author of *The Economics of Defense in the Nuclear Age,* Harvard University Press, 1960) and now himself an Assistant Secretary of Defense, "appears to be driven to larger and larger systems – fitting the gun sights into the planes, then the planes into fighter groups, then the groups into relevant military operations. He may even want to ask what tasks or budgets make sense in view of the whole military operation and of political realities." In other words, he trades on the desire for certainty in large matters as well as small by stretching his numbers thin and finally, one may add, by resorting to the magic of a special vocabulary.

That is the oldest fallacy of our civilization. It has been tried repeatedly and it has never worked. The outlook for its successful application to the problems of civil defense and national security is dim.

To Build or Not To Build

But what are we to do? We are Americans, and Americans believe in doing something, and that something can always be done. We dug trenches in World War I, fox holes in World War II, and we'll dig shelters now – if we're persuaded it might save lives.

The authors of this study have tried to assemble available information on the probable effects of nuclear war and the probable effectiveness of shelters; to piece together the narrative of civil defense efforts and the assumptions that underlie those efforts.

In our judgment, it is a narrative of muddle – not because of any lack of seriousness or intellect on the part of those in charge (Mr. Yarmolinsky, for example, is one of the most sensible and dedicated officials in the Pentagon), but because the survival of large numbers of people, especially the majority packed together in our urban areas, *is* "unthinkable," no matter how much one thinks about it, once full-scale nuclear war breaks out. This seems to us to be the truth of today. As for tomorrow (and in this decade, the fantastic rapidly becomes the commonplace), who can say?

Digging In The Dark

Our conclusion is that if there is a general nuclear war, few will come out of it whole. Survival will be largely accidental, whether or not Congress gives $692.3 million to the President this year for the fallout shelter program. This sorry conclusion applies to our civilization, as well as to individuals. The story of Hiroshima will not be repeated. Its destruction and its rehabilitation occurred when one nation only had a very few, very small atomic – not thermonuclear – weapons. Long-range missiles, space satellites, 55-megaton bombs had not been invented.

Some will *feel* more secure if they have a shelter to which they can repair; and the imponderables being what they are, who can say dogmatically that shelters could not possibly increase one's chances of survival. So, to the dissatisfied who want to do something constructive and concrete, one can only respond, "If you dig, dig deep." And be aware, as you dig, that this peril is unlike any man has experienced, that its effects are unpredictable, that you are digging in the dark. You cannot know whether fallout shelters make war less likely or more; you cannot know whether "the enemy" will use nuclear weapons or not; you cannot know where you will be 15 minutes after a nuclear strike is launched; you cannot know whether an attack will create some radioactive fallout, none, or devastating fire instead; you cannot know what areas will be hit, or with what size bombs; you cannot know which way the wind will be blowing; you cannot know where, at the moment of greatest danger, your children will be or whether you can or should try to reach them. And if circumstances permit your survival, you cannot know what you will then have to do, or whether you will then want to do it.

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